2015-1568

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

SURFCAST, INC.,

Appellant,

v.

MICROSOFT CORPORATION,

Appellee.

_____

Appeal from the United States Patent and Trademark Office,
Before the Patent Trial and Appeal Board, Case Nos. IPR2013-00292, IPR2013-00293, IPR2013-00294, and IPR2013-00295

APPELLANT'S OPENING BRIEF

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CERTIFICATE OF INTEREST

Counsel for Appellant SurfCast, Inc. certifies the following:

1.   The full name of every party or amicus represented by me is:

   SurfCast, Inc.

2.   The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

   Not Applicable

3.   All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

   Not Applicable

4.   The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

   DLA PIPER LLP (US): John Allcock, Kathryn Riley Grasso, James M. Heintz, Stanley J. Panikowski, Gianni Minutoli, Tiffany Miller, Erica Pascal, Amy Walters

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Dated: August 18, 2015   By: */s/ Stanley J. Panikowski*
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STATEMENT OF RELATED CASES

Counsel for SurfCast are aware of the following district court case that involves the same patent that is at issue in this appeal: *SurfCast, Inc. v. Microsoft Corporation.*, Case No. 2:12-cv-00333-DBH (D. Me. filed Oct. 30, 2012). The district court case is currently stayed pending this appeal.

STATEMENT OF JURISDICTION

This action arises from *Inter Partes* Review ("IPR") proceedings, Nos. IPR2013-00292, IPR2013-00293, IPR2013-00294, and IPR2013-00295, before the Patent Trial and Appeal Board. The Board had jurisdiction over the IPR proceeding pursuant to Section 6 of the Leahy Smith America Invents Act ("AIA"), Pub. L. 112-29, 125 Stat. 284 (2011). This appeal is taken from a Final Written Decision issued by the Board, on October 14, 2014, pursuant to § 6(a) of the AIA and 35 U.S.C. § 328. This Court has jurisdiction over this appeal pursuant to 35 U.S.C. § 329, 35 U.S.C.§ 141(c), and 28 U.S.C. § 1295(a)(4)(A).

I.   STATEMENT OF THE ISSUES

A.   Whether the Board erred in its claim construction of "tile."

B.   Whether the Board erred in its determination that MSIE Kit anticipates claims of the '403 patent.

C.   Whether the Board erred in its determination that Duperrouzel anticipates claims of the '403 patent.

D.   Whether the Board erred in its determination that Chen anticipates claims of the '403 patent.

E.   Whether the Board erred in its determination that Duhault II anticipates claims of the '403 patent.

F.   Whether the Board abused its discretion when it interfered with SurfCast's statutorily granted right to amend all of its claims at issue in the IPR.

II.   INTRODUCTION

In the late 1990s, inventors Ovid Santoro and Klaus Lagermann came up with a new idea for a computer graphical user interface (GUI). Users at the time were confronted with the frustration of the ever increasing complexity of interfaces for electronic devices and the need to open multiple separate applications in order to view updated information from different sources. JA164, 1:21-25. The inventors sought to simplify and organize the interface while still preserving its ability to present updated data from multiple sources. *Id.*, 1:25-43. They went beyond the existing icons and windows. They arrived at the concept of "tiles."

Tiles are GUI elements that organize information from various sources into an array of separate units that can be viewed simultaneously on the display.

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JA165, 4:34-41. The array (grid) of tiles resides on the user's desktop. *Id.*, 4:37-38. Tiles bring together multiple types of content – internet sites, data files and folders, video streams, music, e-mail messages and television shows – in a manner not possible with the then-existing icons and windows. Each tile is associated with a specific information source, such as a particular television channel, a specific website or a designated program file. *Id.*, 4:38-54. The tiles thus function as "bookmarks" of information, so that the user can organize and customize the information displayed on the desktop. JA167, 8:29-34. But unlike the existing bookmark technology at the time, tiles are not merely textual reminders or menu systems. Tiles are a visual organization of information, where each tile is a display unit of the associated information source. JA165, 3:63-4:7. This organization and association persist from session to session. JA165, 4:37-38; JA169, 11:23-32.

Tiles also are "dynamic" or "live." They address the user's need for an immediate indication of current content from any information source of interest. Each tile provides an at-a-glance view of the current status of the program or file associated with it. The content shown in the tile is automatically refreshed at an assigned rate to provide a real-time view of the linked information source. JA167, 8:41-51; JA168, 9:25-33.

The tiles run on many different devices, including personal computers and hand-held devices. The grid and the tiles in the grid retain the same characteristics

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across devices. This permits the user to have a consistent and unified interaction

with the tiles across devices. JA166, 5:14-21.

The inventors filed a provisional application on their idea in October 1999,

and the non-provisional application in October 2000. U.S. Patent No. 6,724,403

("the '403 patent") issued on April 20, 2004. JA135. The assignee of the patent is

SurfCast, Inc. ("SurfCast"), a company formed by the inventors. JA135.

Between 2010 and 2012, Microsoft began release of its Windows Phone and

Windows 8 computer operating systems. These systems incorporated "live tiles"

which closely resemble the tiles of the '403 patent. SurfCast brought suit for

patent infringement in October 2012. *SurfCast, Inc. v. Microsoft Corp.*, 6 F. Supp.

3d 136, 141 (D. Me. 2014). Approximately 7 months later, Microsoft filed 4

petitions requesting *inter partes* review ("IPR"), alleging the claims of the '403

patent were anticipated and rendered obvious by prior art. JA14515. The Patent

Trial and Appeal Board ("the Board") instituted trial on 4 of the primary asserted

references and a small subset of the asserted combinations of references. JA113-

14.

In instituting the IPRs and then in rendering its Final Decision, the Board

took an overly-expansive view of "tiles." JA7-10; JA82-84. Unlike the district

court, which construed "tiles" in view of the specification, *SurfCast*, 6 F. Supp. 3d

at 147-152, (D. Me. 2014), the Board disregarded key features of tiles in the

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intrinsic evidence that distinguish them from the prior art: the assignment of the tile to a specific information source, the immediacy of information provided by the selection of the tile, and the persistent nature of tiles. *Id.*

The Board's unreasonably broad construction of "tile" erroneously resulted in a construction that encompasses prior art GUI elements like icons and windows, despite very explicit statements in the patent distinguishing tiles from this prior art. *Id.* More importantly, the Board's errors in construing "tile" resulted in its incorrect conclusion that the four primary prior art references – MSIE Kit, Chen, Duperrouzel, and Duhault II – disclosed "tiles" and anticipated many of the '403 patent claims. JA23-25; JA30-31; JA35-36; JA39-41. This Court therefore should reject the Board's construction of "tile," construe "tile" in a manner consistent with the intrinsic evidence, and reverse the Board's Decision that these four references anticipate the claims of the '403 patent.

In addition, if this Court does not reverse the Board's Decision on all claims, it should remand this case to the Board to allow SurfCast an opportunity to amend the claims that remain at issue. The Board's substantive requirements, when coupled with its limit on the number of pages for SurfCast's motion to amend, effectively denied SurfCast's statutorily granted right to try to amend its claims during the IPR. This Court should therefore remand the Decision back to the Board with procedures that properly permit SurfCast an opportunity to amend the

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remaining challenged claims and sufficient pages to permit compliance with all of

the Board's regulations and case-law-imposed requirements.

III.   STATEMENT OF THE CASE

A.   Procedural History

SurfCast, Inc. ("SurfCast" or "Patent Owner") is the owner of U.S. Patent

No. 6,724,403 ("the '403 patent"). JA135. Microsoft Corporation ("Microsoft" or

"Petitioner") filed four IPR petitions on May 22, 2013, against claims 1-52 of the

'403 patent ("Petitions"). JA14515. SurfCast filed Preliminary Responses to the

Petitions on August 26 and 28, 2013. *Id.* On November 19, 2013, the Board

instituted IPRs on all four of the petitions, and consolidated them into a single

proceeding for trial ("Institution Decision"). JA74. The Board instituted

proceedings on only a subset of the grounds set forth in the Petitions: (1) claims 1–

13, 17-28, 30–33, 35–37, 39–43, and 46-50 under 35 U.S.C. § 102 as anticipated

by Duhault II; (2) claims 1, 9–11, 22, 41–43, 46, and 48-50 under 35 U.S.C. § 102

as anticipated by Chen; (3) claim 29 under 35 U.S.C. § 103 as obvious over Chen

and MSIE Kit; (4) claims 1–3, 5-8, 11, 12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37-40,

43–47, and 50–52 under 35 U.S.C. § 102 as anticipated by MSIE Kit; (5) claims

17, 20, 25, and 28 under 35 U.S.C. § 103 as obvious over MSIE Kit and Brown;

(6) claims 13, 5–8, 12-14, 19, 21, 22, 27, 30, 32, 34, 37-40, 46, and 47 under 35

U.S.C. § 102 as anticipated by Duperrouzel; and (7) claims 17, 20, 25, and 28

under 35 U.S.C. § 103 as obvious over Duperrouzel and Brown. JA74-117.

Following institution, SurfCast filed a Patent Owner's Response addressing

claim construction, as well as all of the grounds on which trial was instituted.

JA14515. Microsoft then filed a reply brief ("Reply") and included a supporting

declaration from its expert Dr. Karger ("Reply Declaration"). *Id.* SurfCast also

sought to file a motion to conditionally amend claims should the original claims be

cancelled. Prior to filing the Patent Owner Response, in a conference call with the

Board on December 12, 2013, SurfCast requested permission to place a listing of

the substitute claims in an appendix that would be in addition to the 15 pages

allowed for the motion. The Board denied the request. JA1188. To remain within

the permitted page limit, SurfCast then selected a small subset of the challenged

claims on which to file the motion to amend. SurfCast selected independent claim

46 as the shortest claim with the least number of dependent claims. The motion

requested substitution of new claims 53–59 for claims 46–52 of the '403 patent

("Motion to Amend"). JA834. Microsoft filed an opposition to this motion and

SurfCast then filed a reply to Microsoft's opposition. JA14515-16.

The Board held an oral hearing on July 10, 2014. It issued a Final Written

Decision ("Decision") on October 14, 2014, in which it found that claims 1-52

were anticipated by the prior art on the following grounds: (1) Anticipation by

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Duhault II for claims 1–13, 17–28, 30–33, 35–37, 39–43, and 46–50; (2)

anticipation by Chen for claims 1, 9–11, 22, 41–43, 46, and 48–50; (3) anticipation

by MSIE Kit for claims 1–3, 5–8, 11, 12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37– 40,

43–47, and 50–52; and (4) anticipation by Duperrouzel for claims 1–3, 5–8, 12–14,

19, 21, 22, 27, 30, 32, 34, 37–40, 46, and 47. JA21-41. The Board also ruled that

claims 17, 20, 25, 28, and 29 were obvious in view of combinations of the prior art.

JA34; JA41-42. In its Decision, the Board denied SurfCast's Motion to Amend.

JA42-50.

     SurfCast filed a Motion for Rehearing of the Decision on November 13,

2014, specifically as to the Board's finding of anticipation of claim 34 by MSIE

Kit and Duperrouzel. JA14517. The Board denied the request on January 6, 2015

("Rehearing Decision"). JA65-73. SurfCast timely filed a Notice of Appeal of the

Board's Decision on March 5, 2015. JA14512.

B.   The Patent at Issue: U.S. Patent No. 6,724,403 ("the '403 patent")

     The '403 patent, originally filed as a provisional application on October 29,

1999, is entitled "System and Method for Simultaneous Display of Multiple

Information Sources." JA135. The invention of the patent is a graphical user

interface ("GUI") that departs from the technology existing in 1999. JA135-179.

The patent moves beyond the traditional world of icons and windows to create a

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new user interface component that the inventors referred to as a "tile." JA167, 7:65-8:56.

Tiles provide a user with content. A tile is "a viewer" of an information source, such as a program, file, or datastream. JA167, 8:30-34. Each tile is separately associated with an information source. JA167, 11:1-3. In this manner, tiles are "bookmarks" of the associated information source. JA167, 8:29-30. Tiles may be organized into a grid or an array. Different tiles may correspond to different applications, but generally, the tiles provide a uniformity of appearance. JA167, 8:52-56; JA137, Fig. 1 (reproduced below).
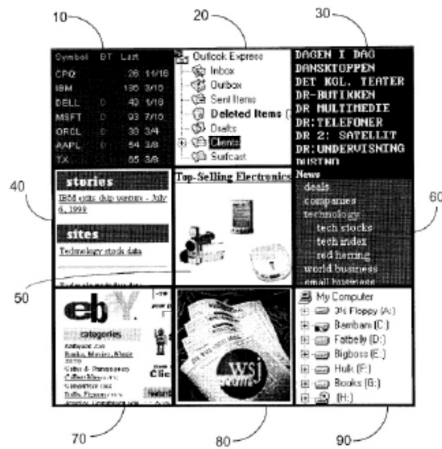
Figure 1 of the '403 patent

"Tiles are selectable and live." JA168, 9:25. The user selects the tile itself (*i.e.*, as a whole unit) to access the linked information source. *See, e.g.*, JA168, 9:1-24; JA169, 11:1-3. "When a tile is selected, whether by mouse click or otherwise, the tile instantly provides the user with access to the underlying information." JA168, 9:25-27.

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Tiles are "live" because they provide access to updated and refreshed content from the program or data to which they are associated. JA167, 8:35-37. This capability does not require user intervention. Instead, each tile may be assigned a rate at which the refreshed information is presented. JA169, 12:50-54. Alternatively, the user may select a refresh rate for the tiles. JA167, 7:55-59. The rates do not need to be the same for each tile. JA164, 2:41-47.

These characteristics distinguish tiles from prior art GUI elements such as windows and icons. JA165, 3:24-34; JA137, Fig. 1; JA139, Fig. 3. Tiles are entry points to applications. JA12221, ¶ 53. The tile provides access to the information linked to it, but the tile is not itself a full-fledged application where the user can, for example, edit documents. JA167, 8:42-45; 8:57-67. A window, by contrast, is a primary work space in which an application runs to work with the data. JA165, 3:35-41; JA167, 8:15-28. The tiles are also "typically smaller in size" than a window, so the user can view multiple tiles simultaneously. JA167, 8:37-41.

The '403 patent also differentiates its tiles from icons. JA165, 3:25-34. An icon does not display information or updated information. JA167, 8:35-37. In contrast, tiles display content, *i.e.*, information from the underlying information source. JA167, 8:35-37 ("A tile . . . provides a real-time or near-real time view of the underlying information in that it contains continually refreshed content."); *see also* JA167, 7:64-64; JA166, 6:39-51.

A key feature of tiles, and an advantage over the existing technology at the time, is their "immediate indication of the current state of the file or program" associated with the tile. JA167, 8:49-51. When the user selects a tile, such as by clicking on the tile with the mouse, the tile provides immediate and direct access to the information source associated with that tile. JA167, 8:49-51; JA168, 9:25-27. This immediacy of information further differentiates a tile from an icon. With an icon, the user first selects the icon and then performs a further step, such as the double-click of the mouse to open a window that then provides the information. JA167, 8:9-14.

C.   The Asserted Prior Art

The Board addressed four primary prior art references in its Decision. Microsoft Internet Explorer Resource Kit ("MSIE Kit"; JA1882-2803) describes a technology called "Active Desktop." U.S. Patent No. 6,832,355 ("Duperrouzel"; JA2824-2853) describes a system for displaying multiple web-pages on a computer monitor or a television in separate, non-overlapping rectangular "display panes." U.S. Patent No. 5,432,932 ("Chen"; JA3232-3320) describes an application that collects and transmits performance data over a network to the host computer. U.S. Patent No. 6,456,334 ("Duhault II"; JA3216-3231) describes the presentation of video images within a window of a computer monitor or on a television display.

IV.   SUMMARY OF THE ARGUMENT

The Board's findings of anticipation should be reversed on multiple grounds. The Board found the 3 independent and 49 dependent claims of the '403 patent unpatentable over one or more of four primary references (MSIE Kit, Duperrouzel, Chen and Duhault II), alone or in combination with supporting references. JA21-42. The grounds for reversal of the Board's findings on a given reference are common to all of the claims considered for that reference. Additionally, for certain claims, the Board found invalidity based on only a subset of the references.[1] Thus, reversal on a subset of the references will result in a determination of at least one patentable claim for the '403 patent.

The Board erred in its claim construction of "tile," a term found in every claim. JA7-10. It then applied this erroneous claim construction in its analysis of all four prior art references. JA23-25; JA30-31; JA35-36; JA39-41. SurfCast proposed a construction of "tile" as "a graphical user interface element whose content may be refreshed, that is persistent, and that, when selected, provides access to an information source assigned to the tile." JA8. This definition mirrored the teachings of the patent and incorporated the features that the patent

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[1] The following claims were held as unpatentable based on only 1 or 2 of the prior art references: Claims 4, 18, 23-24, 26, 31, 33, 35, 36 (Duhault II); Claims 15, 16, 44, 45, 51, 52 (MSIE Kit); Claims 14-16, 34, 38 (MSIE Kit and Duperrouzel); Claims 9, 10, 41, 42, 48, 49 (Chen and Duhault II). *See* JA21-JA42.

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used to distinguish its invention of tiles from other prior art GUIs. JA8-9. The

Board construed tile as "a graphical user interface element whose content may be

refreshed and that, when selected, provides access to an information source."

JA10. This construction omits 2 key features – persistence and the specific linkage

between each tile and its assigned information source. When properly construed

with these features, MSIE Kit, Duperrouzel and Duhault II do not anticipate the

claims.

The Board also improperly expanded its construction of "tile" to encompass

an unreasonably broad scope of "when selected, provides access to an information

source." JA10. It erroneously included the ability to provide access through

subsequent steps following the selection, rather than requiring the selection to

provide direct and immediate access to information as required by the patent. *See*

JA30-31; JA35-36. On this basis, the Board's decision regarding the MSIE Kit

and Chen references was in error. The Board also made additional errors of fact

and law, respectively, that warrant a reversal of its findings of anticipation for

Chen and MSIE Kit.

Alternatively, the Board's Decision should be reversed and remanded back

to the Board because a substantial procedural error denied SurfCast's statutory

right to propose amendments for all of the challenged claims. Moreover, the

arbitrary constraints the Board placed upon the length of the motion prohibited

SurfCast from effectively offering the evidence that supported the validity of these amendments.

For all of these reasons, the Board's Decision should be reversed.

V.   ARGUMENT

A.   Standard of Review

"This court reviews the Board's legal conclusions de novo and its factual findings for substantial evidence." *Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973, 977 (Fed. Cir. 2014).

This Court "review[s] the Board's claim construction according to the Supreme Court's decision in *Teva Pharmaceuticals U.S.A., Inc. v. Sandoz, Inc.*" *In re Cuozzo Speed Techs., LLC,* 778 F.3d 1271, 1282 (Fed. Cir. 2015). The ultimate question of claim construction is an issue of law, but factual findings are reviewed for clear error. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 838 (2015). A claim construction that relies only on intrinsic evidence (the patent and its prosecution history) is a determination of law rather than fact. *Id*. at 841. Because here the Board relied upon the intrinsic evidence, the patent specification and claim language, (JA8; JA82-84), this Court applies a *de novo* standard of review. *In re Cuozzo*, 778 F.3d 1271 at 1283.

The Board applies the "broadest reasonable interpretation" to the construction of claim terms in an *inter partes* review. *In re Cuozzo*, 778 F.3d at

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1282. "Even under the broadest reasonable interpretation, the Board's construction cannot be divorced from the specification and the record evidence, and must be consistent with the one that those skilled in the art would reach." *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (internal quotations and citations omitted).

"Anticipation is a question of fact." *In re Gleave*, 560 F.3d 1331, 1334-35 (Fed. Cir. 2009). The determination of what a reference teaches is also a question of fact, "including whether an element is inherent in the prior art." *Id*.; *In re NTP, Inc.*, 654 F.3d 1279, 1297 (Fed. Cir. 2011). Accordingly, this Court reviews the Board's findings regarding anticipation for substantial evidence. *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1382 (Fed. Cir. 2015). Substantial evidence refers to "relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *In re Gartside*, 203 F.3d 1305, 1312 (Fed. Cir. 2000) (quoting *Consolidated Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938)).

This Court reviews procedural decisions of the Board for abuse of discretion. *In re Sullivan*, 362 F.3d 1324, 1326 (Fed. Cir. 2003). "An abuse of discretion is found if the decision: (1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact finding; or (4) involves a record that contains no evidence on which the Board

could rationally base its decision." *Bilstad v. Wakalopulos*, 386 F.3d 1116, 1121 (Fed. Cir. 2004).

B.   Because the Board's Construction Failed to Require Associating Each Tile With a Specific Information Source, Its Findings of Anticipation Should Be Reversed.

1.   An Association With a Specific Information Source Is an Essential Feature of a Tile.

The Board erred when it refused to include the feature "assigned to the tile" in its claim construction of "tile." SurfCast's proposed construction included the feature "when selected, provides access to an information source <u>assigned to the tile</u>." The missing "assigned to a tile" is a feature that the patent uses to distinguish tiles from other graphical user interface (GUI) mechanisms that could provide information. The construction of "tile" therefore should have maintained this distinguishing feature to appropriately reflect the intended scope of the claimed invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) ("Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim.") (quoting *Renishaw PLC v. Marposs Societa' Per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)).

As the '403 patent explains, the technologies at the time the patent was filed "lack[ed] an interface which is capable of organizing any type of information, presenting such information to the user in a consistent manner" and the invention

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of tiles "facilitates the organization and management of multiple data sources."

JA165, 4:24-27; 4:34-36. The '403 patent discloses that "[e]ach tile is separately

associated with a source of information, for example, an application program,

datastream or file." JA169, 11:1-3. "Tiles permit 'dynamic bookmarking' of

information in that each tile is a viewer of a single information source . . . and can

be customized with the user's choice of content." JA167, 8:30-35; *see also* JA168,

9:25-31 ("When a tile is selected, . . . the tile instantly provides the user with

access to the underlying information, whether that data be a hierarchical menuing

system leading the user to a different level or tiles, a word processing file stored on

a local area network, a spreadsheet stored locally on a user's computer, HTML file

on the Internet, or a television signal."); JA141-142, Figs. 5 and 6 (showing target

addresses for tiles). Thus, according to the patent, each tile is assigned a particular

information source so that when the user selects the tile, information is provided

from that particular assigned source.

By excluding "assigned to the tile" from its construction, the Board distorted

the meaning of "tiles" to include embodiments of alleged tiles that would provide

access to any source of information, rather than a particular assigned source. For

example, the Board's construction would erroneously include a "tile" that when

selected by a user on one day would link to the CNN homepage and when selected

by the user on the next day would link the user to the ESPN homepage.

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The Board's interpretation contradicts the patent's teachings, which explain that "[t]iles permit 'dynamic bookmarking' of information in that each tile is a viewer of a single information source." JA167, 8:29-34; *see also* JA168, 9:57-65 ("A representative tile data structure 500 is shown in FIG. 5 . . . The tile data structure 500 comprises two addresses: a tile address 502 . . . and a target address 504 that is the location at which the file or application program associated with the tile can be found"); JA169, 11:1-2 ("Each tile is separately associated with a source of information"); JA169, 11:15-31 ("Together, the grid and tiles comprise the application through which a user can view simultaneously information from a multitude of his available sources. . . . The application, therefore, becomes a graphical file manager . . . Effectively, the application replaces the user's desktop with a more visually intuitive dynamic menuing system.").

The Board's broader interpretations are therefore inconsistent with how the '403 patent characterizes its invention of "tiles" and should be rejected. *See Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (rejecting the Board's "unreasonably broad constructions" because they did not "reasonably reflect the language and disclosure" of the patent); *In re Imes*, 778 F.3d 1250, 1252 (Fed. Cir. 2015) (rejecting the Board's inclusion of a memory card within its construction of "wireless" because it was "inconsistent with the broadest reasonable interpretation in view of the specification"). The phrase

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"assigned to a tile" is necessary to reflect the nature of the specific linkage between a tile and the information source to which it provides access. Because the Board excluded this necessary feature, its claim construction of "tile" should be reversed.

2.   Because the Board Incorrectly Excluded "Assigned to a Tile" from Its Construction, Its Conclusion That MSIE Kit Anticipates the Claims Should Be Reversed.

The Board's determination of anticipation should be reversed because when "tile" is properly construed to require upon selection the provision of access to a specific information source assigned to it, MSIE Kit lacks this feature. The Active Desktop items of MSIE Kit do not have a specific information source assigned to them to which access is provided upon selection. JA36; *see also* Section VI D.2, *infra.* An item is essentially a portion of a webpage that appears in a borderless frame. JA2105.

The Board relied on hyperlinks and hot spots that may be included in an item to provide the access to a linked information source. JA36. Although the website being displayed in an item may contain a hyperlink or a hot spot in a discrete region within the item, this feature is not required. JA2016; *see also* JA1636-1637, ¶ 270. If there is no hyperlink or hotspot displayed in the portion of the webpage being displayed in the item, then the item does not provide access to any information when selected.

Even for those items that may display a portion of a web page that does have a hyperlink or hotspot, this link is associated only with the web page currently being displayed; it is not associated with or assigned to the item itself. *See* Sections V.D.2, E.1, *infra*. The presence of a hyperlink or hotspot in an item is instead dependent on the item's changing content. For example, if the portion of today's CNN home page being displayed in the item (*e.g.*, the first 100 lines or top four inches) includes a news story about the recent satellite photos from Pluto with only a single link to a NASA webpage with those photos, then the active desktop item can only provide access to that NASA webpage – not the CNN home page – in response to a user selection. When that portion of the CNN home page changes, any information sources that may be accessed by user selection through hyperlinks or hotspots will also change. Thus, the hyperlinks and hotspots that may be displayed in an Active Desktop item are not assigned to that item, but rather are simply a part of whatever web page is being currently displayed by that active desktop item.

As another example, MSIE Kit describes an item with a set of scrolling headlines of news stories. JA2142. If a user clicks on a particular headline within the item, it will be taken to a news article. *Id*. Only the headline is associated with the particular information source (*i.e.*, the news article). No specific news article is assigned to the Active Desktop item itself, nor could it be. Rather as the headlines

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come and go, so too does the ability of the item to reach that information source.

Also, the identity of the information source reached will vary. For instance,

clicking on one headline in the morning may take the user to the CNN webpage

and clicking on a different headline in the item later in the day may take the user to

the Wall Street Journal webpage.

Accordingly, because MSIE Kit does not disclose any items that themselves

have an assigned information source, its items are not "tiles" under the proper

construction of this term. Therefore, the Board's finding that claims 1–3, 5–8, 11,

12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37– 40, 43–47, and 50–52 are anticipated by

MSIE Kit should be reversed.

C.   Because the Board Erred in Its Construction of "Tile" by Excluding the Feature of Persistence, Its Findings of Anticipation Should Be Reversed. [2]

1.   Persistence Is an Integral Feature of "Tile."

The Board declined to include "persistent" as one of the required features

defining a tile. It improperly attributed this feature only to a preferred embodiment

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[2] If this Court reverses the Board's claim construction based on "persistent" and
the findings of anticipation based on that construction, then claims 4, 13, 18, 23,
24, 26, 31, 33, and 36 would be free from all of the grounds on which they were
found unpatentable in the Decision. If this Court reverses the Board's claim
construction based on "persistent" and "assigned to a tile" and the anticipation
findings based on those constructions, then claims 2–8, 12–16, 18, 19, 21, 23, 24,
26, 27, 30-40, 44, 45, 47, 51 and 52 would be free from all of the grounds on
which they were found unpatentable in the Decision.

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of the patent and reasoned that, even if persistence were a feature, "a claim need

not recite every structure or function necessary to carry out the invention." JA10.

The Board's reasoning was incorrect.

The patent need not explicitly use the word "persistent" to convey this

feature as an integral part of "tile." *Phillips v. AWH Corp*., 415 F.3d at 1316

("[C]laim terms by implication such that the meaning may be found in or

ascertained by a reading of the patent documents.") For tiles of the '403 patent,

one of ordinary skill in the art would recognize that they are always described in

the patent in a manner that implies persistence. The tiles of the invention "reside

on the user's computer desktop." JA165, 4:37-38. One of ordinary skill in the art

thus would understand tiles – like other items on the desktop – to be persistent.[3]

JA1258-12160, ¶¶ 45-49. The patent explains that the grids of tiles are a

"graphical file manager" that effectively "replaces the user's desktop with a more

visually intuitive dynamic menuing system." JA169, 11:23-32; *see also* JA168,

10:47-49; JA169 11:33-35; JA167, 8:29 -30 ("Tiles permit "dynamic

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[3] The district court correctly incorporated "persistent" into its construction of
"tiles." It noted that "the Summary of the Invention presents a more compelling
case for persistence than Microsoft or the PTO credits." *SurfCast, Inc. v. Microsoft
Corp*., 6 F. Supp. 3d 136, 149 (D. Me. 2014). The court noted that the grid of tiles
(and thus the tiles themselves) reside on the user's desktop and that "[t]he most
relevant definition of 'reside' is 'to abide, lie, or be present habitually.'" *Id.* The
tiles therefore reside (*i.e.*, persist) on the desktop.

bookmarking" of information …"); *see also* JA169, 11:50-52. The patent

identifies bookmarking as a key feature missing from other GUIs. JA165, 4:3-5

("The missing capability is a visual categorization in which an area of the display

unit itself becomes the bookmark"). This concept of bookmarking would be

impossible if tiles did not persist between a user's sessions.

Persistence is not merely a feature of a particular preferred embodiment. All

of the embodiments of the patent evince the persistent nature of tiles. The '403

patent does not describe any embodiments that would permit a tile to lack

persistence as a feature.[4] That "persistent" is explicitly called out in one of the

specific embodiments (JA171, 15:63-64) does not change the fact that persistence

is a feature of all embodiments. The language describing the tiles in concept and

the specific embodiments all embrace the concept of persistence. *See* JA12158-

12160, ¶ 48 and citations to the patent specification therein, *e.g.*, describing

"bookmarking," dynamic menuing, caching, storing of images and target

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[4] *See SurfCast, Inc. v. Microsoft Corp.*, 6 F. Supp. 3d 136, 150 (D. Me. 2014)
("The invention is, at its heart, a human interface concept that is meant to replace
the icon-based paradigm with a tile-based paradigm. . . . It follows that tiles could
not replace icons without also being persistent…. One of skill in the art, after
reading and digesting the patent as a whole, would understand that a 'tile,' as a
human interface concept, would be of little use were it not to persist between
sessions."); *see also, id.* at 176 (comparing "spanning" as a potential feature, and
noting that "this is not such a case as the persistence of tiles, where excluding the
feature would defeat the entire purpose of the invention.").

addresses; *see also* JA168 9:58-66 (describing the storage of "the location at which

the file or application program associated with the tile can be found"); JA169,

11:45-52 (describing storage of passwords and identifiers to subscription services

and further noting that "Internet sites can be 'bookmarked' and stored by the grid,

each site possessing its own tile."); JA170, 13:7-17, 14:16-18 (describing the

storage of various tile attributes); JA175, 23:63-24:2; JA174, 22:22-34 (describing

storage of tile content such as for "consistent grid and tile implementations

independent of the device"). One of skill in the art would therefore read the patent

as a whole to convey the concept of persistence. *See SurfCast, Inc. v. Microsoft*

Corp., 6 F. Supp. 3d 136, 150 (D. Me. 2014) ("[O]ne of skill in the art would read

the patent not only for the trees but also for the forest.").

The Board thus erred when it failed to recognize that persistence is a feature

of "tiles." The consistency of this feature throughout the specification and its

nature as essential to the "bookmarking" concept of the invention mandate the

inclusion of "persistent" in the construction of "tile." *See Irdeto Access, Inc. v.*

Echostar Satellite Corp., 383 F.3d 1295, 1303 (Fed. Cir. 2004) (consistency and

exclusivity of a concept throughout the patent's embodiments "manifest[s] the

patentee's clear intent to so limit the term"); *In re Abbott Diabetes Care Inc.*, 696

F.3d 1142, 1150 (Fed. Cir. 2012) (consistency of feature throughout embodiments

as one basis to include within the construction).

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2. Because the Board Incorrectly Excluded "Persistent" from Its Construction, Its Conclusion That Duperrouzel Anticipates the Claims Should Be Reversed.

When properly construed, persistence is a key feature of a "tile." The Board made no findings in its Final Decision that Duperrouzel provided this feature. JA141. Duperrouzel describes a system for displaying multiple web-pages on a computer monitor or a television in separate, non-overlapping rectangular "display panes." JA2845, 2:4-6. The evidence of record indicates that persistence is entirely lacking in this reference. Duperrouzel's display panes do not include a mechanism for saving particular configurations for future use. JA2824-2853. Duperrouzel requires populating display panes from a stored list of web-sites JA2845, 2:18-25; JA2850, 11:7-8. The panes must be manually launched by the user from this list at each session, such as by a drag and drop mechanism. JA2850, 11:9-36. Thus, the panes themselves are not preserved, nor is their configuration maintained from session to session.

In its Institution Decision, the Board relied on Duperrouzel's description of a "Start Up" option with "a checkbox for navigating to sites last viewed" as conveying persistence. JA35, citing JA2851, 13:21-22. However, Duperrouzel's Start Up option does not include persistence as this concept exists in the '403 patent. The '403 patent requires the tiles to persist from session to session in a manner that retains their association with an assigned information source. JA171,

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15:63-64; *see also* JA167, 8:29-34, 11:1-3 (associating each tile with an information source). Duperrouzel's display panes do not have this persistent association. For example, if a pane in Duperrouzel were truly persistent and such pane was associated with the Wall Street Journal (WSJ) home page as the "information source," then regardless of what news story the user last viewed on the pane, at subsequent sessions the pane would always return to the WSJ home page. However, the Start Up option of Duperrouzel only navigates to the page last viewed by the user. It only returns the viewer to the last news story from the previous session, rather than to the WSJ homepage. JA2851, 13:21-22; JA12198-12199, ¶ 143.

Accordingly, because Duperrouzel's panes are not persistent, they are not "tiles" when this term is properly construed. Therefore, the Board's finding that Duperrouzel anticipates claims 1–3, 5–8, 12–14, 19, 21, 22, 27, 30, 32, 34, 37–40, 46, and 47 should be reversed.

3.   Because the Board Erroneously Excluded "Persistent" from Its Construction, Its Finding of Anticipation by Duhault II Should Be Reversed

The Board declined to consider Duhault II in view of SurfCast's proposed construction of tile. Because the failure to include the feature of "persistent" in the construction of "tiles" was in error, the Board's finding of anticipation should be reversed.

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Duhault II describes the presentation of video images, such as a television or cable channel, within a window of a computer monitor or on a television display. JA3227, 1:65-67; JA3228, 3:1-9. The Duhault II system comprises two or more television tuners (JA3230, 7:53-55), each of which cycles around a group of one or more of the video channels so that each video image displays recent content.

The Board made no findings that this system provides any form of persistence. JA23-25. Duhault II is silent on this point. It does not disclose how the videos are initially selected for display for association with the tuners. JA12177-12178, ¶ 93. Duhault II also does not disclose whether any video configurations, displays or attributes are saved by the system. *Id.* Moreover, the Petitioner declined to rebut SurfCast's assertion that Duhault II failed to disclose this key feature. JA755-757. Accordingly, the Board's holding that Duhault II anticipates claims 1–13, 17–28, 30–33, 35–37, 39–43, and 46–50 should be reversed.

D.   Because the Board Applied an Unreasonably Broad Construction of "Tile," Its Findings of Anticipation Should Be Reversed. [5]

1.   The Board Erred in Its Construction of "Tile" by Including the "Ability" to Access an Information Source Within "Provides Access."

The Board incorrectly construed "tile" based on its overly broad scope of "when selected, provides access to an information source." The Board improperly included embodiments that did not provide immediate access to the information source upon selection by a user, but rather provided only an ability to access information through subsequent steps. The Board's expanded scope was error because it distorts the meaning of tile beyond the specification and would encompass prior art that the patent explicitly distinguished from tiles.

"Tile" was not a term of art prior to the '403 patent. JA12153-12154, ¶¶ 33-34; JA12157, ¶ 42. It is a term coined by the inventors. JA167, 8:29-30. Therefore, absent a meaning in the art, its meaning must be found in the patent itself. *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004) (citing *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1570 (Fed. Cir. 1997)).

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[5] If this Court reverses the Board's Decision regarding MSIE Kit, Duperrouzel and Chen on the basis of the Board's unreasonably broad interpretation of "tile," claims 14-16, 34, 38, 44, 45, 51 and 52 would be free from all grounds of unpatentability set forth in the Decision.

The provision of information upon the selection of the tile is a key concept throughout the specification. *See Bell Atl. Network Servs., Inc. v. Covad Commc'ns Grp, Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001) ("the patent need not set out an explicit definition but can define the term by implication such that the meaning may be found in or ascertained by a reading of the patent documents." (internal quotations omitted)). The patent links the selection of a tile to the direct and immediate provision of additional information: "When a tile is selected, whether by mouse click or otherwise, the tile instantly provides the user with access to the underlying information . . . ." JA168, 9:25-27. This provision of information without further user action is thus a key defining feature of tile. *See Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1324 (Fed. Cir. 2008) ("The claim's [sic] of the patent must be read in light of the specification's consistent emphasis on this fundamental feature of the invention.").

The Board erred when it construed "tile" to encompass embodiments that did not provide access to information upon selection but, instead, provided only the "ability to access" information through additional steps taken by the user after selecting the item. JA30-31; JA36-16; JA68. The Board's interpretation was "unreasonably broad" and should be rejected. *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) ("Even under the broadest reasonable interpretation, the Board's construction cannot be divorced from the specification

and the record evidence, and must be consistent with the one that those skilled in the art would reach."); *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004) (when relying on the specification for a term's meaning, the term can only be construed "as broadly as provided for by the patent itself.").

Exemplary of this error, the Board's construction included the ability to select an MSIE Kit item where such selection itself did not result in the display of any information from the underlying website. Rather, to access information, the user must perform a second step of clicking on a hyperlink within the item and it is only this subsequent manipulation that brings the user to a webpage. JA68. The Board's construction also erroneously included the selection of an instrument from a menu, as disclosed in the Chen reference, where the selection of the instrument does not display or provide any information at all. Instead, the user then must select an option from a subsequently displayed menu to initiate a recording and then later access the recorded information through further steps. JA30-31; JA1153.

The Board's overly broad scope of "tile" is inconsistent with the specification and thus erroneous. *In re Cuozzo*, 778 F.3d at 1279 (the broadest reasonable interpretation is one that is consistent with the specification); *In re Imes*, 778 F.3d 1250, 1252 (Fed. Cir. 2015) (rejecting Board's inclusion of a

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memory card within its construction of "wireless" as inconsistent with specification's definition of the term).

The overly broad scope given to "tile" by the Board would incorrectly attribute features to a tile that were specifically distinguished as belonging to the prior art. The '403 patent expressly distinguishes the fundamental feature of providing immediate information from simply the ability to reach an information source through a multi-step mechanism. For example, the patent expressly distinguishes a tile from a prior art icon because more than one selection step is required to communicate information or review data associated with the underlying program. JA167, 8:49-51; *see also* JA167, 8:7-14 ("[a]n icon can be selected . . . . In response to a further selection operation on an icon, for example a double-click of a mouse button, the graphical user interface will provide a window that can be used to communicate further information to the program or review the associated datastream."). Selection of a tile, in contrast, provides information immediately and directly without any further user action. JA168, 9:25-27.

Therefore, a mechanism that provides only the ability to eventually access an information source through subsequent manipulations cannot fall within the claim scope. *See Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1302 (Fed. Cir. 2004) (description of term within specification can "by clear implication restrict the scope of the invention"); *Kinik Co. v. Int'l Trade*

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Commission, 362 F.3d 1359, 1365 (Fed. Cir. 2004) ("inventor's discussion of the disadvantages of the [] prior art sheds light on the scope of the invention"). Accordingly, the Board erred when it included an ability to subsequently access information through additional user actions within "when selected, provides access."

2.   Because the Board Applied an Unreasonably Broad Construction of "Tile," Its Conclusion That MSIE Kit Anticipates the Claims Should Be Reversed.

The Board's finding of anticipation is erroneous because it relied on an "ability" of MSIE Kit to provide access to an information source, rather than the required feature "provides access." The Board found that for MSIE Kit Active Desktop items that displayed a hyperlink or hotspot, the item provided the user with "the ability to select" these links, *after selecting the item*, to then reach information. JA68. However, the initial selection of the Active Desktop item itself, absent the subsequent click on the hyperlink or hotspot, does not provide any information. JA36. In other words, the selection of the Active Desktop item only provides the ability for access, but not the access itself.

Moreover, even this ability for access to information is not a property of the item *per se*. It at best belongs to a hyperlink or hotspot that resides in a discrete region within a webpage displayed in the item. JA2106; *see also* JA1636-1637, ¶ 270. The hyperlinks and hotspots are not a permanent or constant association

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with an item; their appearance comes and goes as the content of the webpage displayed in the item changes. *See supra*, Sec. VI B.2. When the webpage displayed in the item lacks a hotspot or hyperlink, there is no ability to access any information at all. And with a hotspot or hyperlink, clicking on the item anywhere outside of the discrete spot has no effect. Thus, selecting the item as a unit does not provide even the ability to access information.

Under the correct construction, simply providing an ability to provide access through subsequent steps is not sufficient to constitute a "tile." Also under the correct construction, providing an ability to access information through an embedded hyperlink or hotspot in a limited discrete region of an item is not sufficient to constitute a "tile." Because MSIE Kit does not disclose any embodiments of items that themselves are selectable and provide immediate access to information without subsequent user action, it does not disclose "tiles" that "when selected, provides access to an information source" as required by the '403 patent claims. Accordingly, MSIE Kit does not anticipate claims 1–3, 5–8, 11, 12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37– 40, 43–47, and 50–52 of the '403 patent, and the Board's Decision should be reversed.

3.   Because the Board Applied an Unreasonably Broad Construction of "Tile," Its Conclusion That Duperrouzel Anticipates the Claims Should Be Reversed.

The Board also applied the overly broad interpretation of "when selected, provide access to an underlying information source" to incorrectly equate Duperrouzel's display panes with tiles. The panes disclosed by Duperrouzel are fully functional web-browser applications displaying active web pages. To find "selection," the Board relied on the use of the scroll bar within the pane, which allows a user to scroll through the webpage to see more of it. JA40-41.

The Board's rationale is incorrect for two reasons. First, the user cannot use the scroll bar until after the user has first selected the pane. *Id.* Only the subsequent step of using the scroll bar "provides access." *Id.* Thus, the selection of the pane does not fit with "provides access" as used by the '403 patent. Instead, Duperrouzel's multi-step process divorces the selection of the pane from immediate access to the information source and is thus akin to the prior art icons distinguished by the patent. *See Kinik Co. v. Int'l Trade Commission*, 362 F.3d 1359, 1365 (Fed. Cir. 2004) ("Claims cannot be construed as encompassing the prior art that was distinguished in the specification . . . .").

The Board's reasoning also is erroneous because the application running in each pane together with controls such as the scroll bar provided by that application is always active and accessible to the user. *See, e.g.*, JA2847, 5:11-12; JA2848,

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7:26. The pane of Duperrouzel is thus similar to the prior art window described by

the '403 patent. *See e.g.*, JA167, 8:15-25 (a window "has a format which contains

many active areas around its borders. Examples of active areas include . . . a

vertical scroll bar 344, a horizontal scroll bar 350. . . .").

The '403 patent, however, explicitly distinguishes windows from tiles.

JA165, 3:24-52; JA167, 7:39-42. The selection of a tile in the '403 patent provides

the user access to *new* information from the underlying information source.

JA167, 8:29-34. The selection, such as by a mouse click, results in an operation

such as opening an application. JA168, 9:25-33. The inclusion of scrolling within

a display is thus outside the scope of "provides access" as described by the patent

and to include it would improperly encompass the prior art. *See Kinik*, 362 F.3d at

1365.

Accordingly, the Board unreasonably broadened the scope of "when

selected, provides access," to reach its conclusion that Duperrouzel anticipates the

claims. When construed properly, Duperrouzel does not disclose any display

panes that meet the required feature of "tiles," and thus the Board's finding of

anticipation of claims 1–3, 5–8, 12–14, 19, 21, 22, 27, 30, 32, 34, 37–40, 46, and

47 should be reversed.

4.   The Board's Error in Construing "Tiles" Negates Anticipation by Chen.

The Board applied its unreasonably broad construction of "provides access" to Chen and thus erroneously determined that Chen anticipates claims of the '403 patent. JA30-31. Chen describes a performance monitoring application that can display information in multiple windows. *See, e.g.*, JA3267-3269, 1:57-5:42. In Chen's system, the user can set up a "console" window and, within the console, a user can select an instrument. JA3270, 8:26-31. Once the instrument is selected, the user can then select from a submenu of commands for recording a data stream into a recording file, for example, "save buffer," "begin recording," "save & begin rec[ording]" and "end recording." *See, e.g.*, JA3273, 3:38-65; 14:4-29.

The Board incorrectly equated the instruments disclosed by Chen with the patent's "tiles." JA30. The Board relied on a feature called "marking mode" to meet the feature of providing access to an information source. *Id*. This form of "providing access," however, includes several steps. JA11378-11379, ¶ 98. The user selects the instrument, which then brings up a submenu of options. The user then selects the "Marking On button," and following this step, the user's subsequent mouse-clicks are interpreted as requests to insert marker tokens into the recording. The "ability to insert marker tokens" at this last step of the process is the purported form of access to the information source. *Id*.; JA30.

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However, when construed properly, "tiles" cannot encompass Chen's instruments. The user only reaches the marking mode by going through a number of additional steps. Thus, even if the "marking mode" could provide the user with information, such information is not provided directly and immediately from the user's selection of an instrument without the need for additional user actions. The step of selecting the instrument provides only the ability for the user to eventually reach an information source.

The Board's alternate reasoning, relying on the selection of the instrument as "provides access" (JA30-31), is also faulty for similar reasons. This too does not provide access to information but instead requires several steps. In this scenario, the user first selects the instrument. Then the user, for example, selects "begin recording" as an option from a submenu. JA30-31 citing JA3247, Fig. 11; JA3273, 14:67-15:2. The Board reasoned that the ability to control the information source is "'provid[ing] access' to that information source." JA31. Even if this control could be interpreted as providing access,[6] selecting the instrument *per se* does not provide this control. The user must engage in a subsequent choice of submenu

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[6] *See* Section V.E.2 below. The Board's conclusion that selection of an instrument "provides access to an information source" is not supported by substantial evidence because no information is provided to the user from controlling an instrument such as by choosing the "begin recording" menu option.

items and the subsequent selection of an option (*e.g.*, begin recording) to control

the instrument.

Like the prior art distinguished by the '403 patent, Chen discloses an indirect

multi-step process between the user's selection of the instrument and any

subsequent "access." The instrument selection provides only the ability for the

user to eventually reach the controls, but selecting the instrument itself does not

provide the ability to record. Accordingly, under the proper construction, Chen's

instruments are not "tiles," and Chen therefore does not anticipate claims 1, 9–11,

22, 41–43, 46, and 48–50 of the '403 patent.

> **E.   The Board's Findings of Anticipation Should Be Reversed
> Because it Erred in Determining the Prior Art References
> Disclosed "Tiles."**

Even if this Court finds that the Board's construction of "tile" was not in

error, the Board's findings that MSIE Kit, Chen and Duhault II disclosed "tiles"

are incorrect and should be reversed.

> **1.   The Board Erred in Its Finding that MSIE Kit
> Anticipated the Claims Because It Misapplied the
> Law of Anticipation.**

The Board applied an incorrect legal standard to determine that MSIE Kit

disclosed "tiles." The Board's claim construction requires that a tile "when

selected, provides access to an information source." In other words, access to the

information is provided when the tile itself (as a unit) is selected by the user.

MSIE Kit, however, does not explicitly or inherently disclose Active Desktop

items with this feature. It therefore cannot anticipate the claims. *In re Omeprazole*

Patent Litig., 483 F.3d 1364, 1377 (Fed. Cir. 2007) ("Anticipation requires that

'each element of the claim at issue is found, either expressly described or under the

principles of inherency, in a single prior art reference'" (quoting *Kalman v.*

Kimberly-Clark Corp., 713 F.2d 760, 771 (Fed. Cir.1983))). The Board committed

legal error when it found that an Active Desktop item could meet this requirement

based solely on the Petitioner's expert's speculation that such an item could be

created by one of ordinary skill in the art. JA36; JA67-68.

The Board equated Active Desktop items with "tiles." JA35-36. However,

Active Desktop items of MSIE Kit do not necessarily have a mechanism to access

information. The items may simply contain graphical images without any ability

to be selected and provide access to an information source. JA36. Moreover, even

for Active Desktop items that do have some type of access mechanism, this

mechanism does not extend to the item in its entirety. An Active Desktop item

may contain hyperlinks or hot spots *within* the item, but they do not occupy the

entire item. JA2141 ("information items in desktop components often include

hyperlinks or hot spots, so that users can click <u>a designated area</u> . . ." (emphasis

added)).

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The Board, however, relied on the selection of the "hot spots" or hyperlinks within the item as the mechanism to "provide[s] access to an assigned information source." JA36. The Board did not find that selecting the item itself provided access to information. Instead, the Board erroneously concluded that anticipation was established because "a 'hot spot' can be defined to encompass the entire Active Desktop item." *Id.*

The Board reached its conclusion through an erroneous legal premise. MSIE Kit does not explicitly disclose a hot spot or hyperlink that encompasses the entire area of the Active Desktop item. *Id.* The Board relied on the statement of Dr. Karger (Microsoft's expert) that "that one of ordinary skill in the art would have known how to create a hot spot and that it could be defined anywhere on an Active Desktop Item, including across the entire Item." JA36 (citing Reply Dec., JA11393-11394, ¶¶ 131-33). That a person of ordinary skill in the art could have designed an item to fit the requirements of a "tile" is legally insufficient to establish anticipation. *In re Omeprazole*, 483 F.3d at 1378 ("anticipation 'cannot be predicated on mere conjecture respecting the characteristics of products that might result from the practice of processes disclosed in references'" (quoting in part *W.L. Gore v. Garlock, Inc.*, 721 F.2d 1540, 1554 (Fed. Cir.1983)).

The Board further reinforced this error in its Rehearing Decision when it relied on page 420 of the MSIE Kit disclosure. JA67-78. The cited page states

only that "hot spots" "establish regions of the screen that can process mouse clicks." JA2349. It does not provide any disclosure of a hotspot that occupies the entire area of the item. The Board also again erroneously relied on the same passage in Dr. Karger's declaration for the possibility that one of skill in the art could have known how to incorporate the required feature into Active Desktop items. JA67-68. The Board's reasoning thus relied only on the *possibility* that one could use MSIE Kit to construct an item with the required feature of tiles. This conjecture, as this Court's precedent makes clear, is not legally sufficient. *See In re Omeprazole*, 483 F.3d at 1378.

Moreover, the Board improperly shifted the evidentiary burden to the Patent Owner even though it is the Petitioner's burden to prove unpatentability. *See* 35 U.S.C. § 316(e). The Board's Decision states that "Patent Owner identifies no evidence in MSIE Kit that suggests a 'hot spot' cannot be an entire Active Desktop item." JA68.

Accordingly, the Board committed legal error when it found that MSIE Kit disclosed "tiles" and in turn, anticipated the patent. Therefore, its finding of anticipation of claims 1–3, 5–8, 11, 12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37– 40, 43–47, and 50–52 should be reversed.

2.   The Board's Finding that Chen's Instruments Are "Tiles" Is Not Supported by Substantial Evidence.

The Board incorrectly determined that selection of an instrument and the subsequent selection of a submenu option satisfies the "provides access to an information source" requirement. The Board's finding lacks substantial evidence to support its conclusion that any information is accessed through these steps.

The submenu items available after selecting an instrument relate to whether information is written into a recording file. JA30; JA3240, Fig. 11; JA3273, 13:67-14:29; JA3273,14:67-15:2. The process of writing the information is not providing the user access to the information. It is the reverse; data is being provided to be written into a file and stored on a disk. JA3273, 13:48-65; 14:4-29; JA3275,18:35-19:4; JA3240-3241, Fig 12a,b. The user cannot access this information by selecting an instrument. Instead, the information can only be accessed by selecting the recording files from a separate menu of options. *Id*. Therefore, "when selected" an instrument does not provide access to the recording file (the alleged information source).

The Board's reasoning that selecting a control option from a submenu "provides access to an information source" also is not supported by substantial evidence. The Board's Decision cites no evidence to equate control with access, stating only that SurfCast did not negate this possibility. JA31. This reasoning is incorrect on two grounds. First, it improperly shifts the evidentiary burden to the

patent owner; it is the petitioner's burden to prove unpatentability. *See* 35 U.S.C. § 316(e). Second, the Board's conclusion equating control of an instrument with "access to an information source" is contradicted by the '403 patent's disclosure. The patent states that tiles present *content* from an information source. JA167, 7:64-65; JA166, 6:39-51. Selecting an instrument in Chen or selecting a control option such as "begin recording" from a subsequent submenu does not provide content from the recording files or any other source.

Accordingly, the Board's determination that Chen's instruments meet the definition of "tiles" is not supported by substantial evidence and its finding of anticipation of claims 1, 9–11, 22, 41–43, 46, and 48–50 should be reversed.

F.   The Board Abused Its Discretion by Preventing SurfCast From Exercising Its Statutory Right to Try to Amend Its Claims.

As the patent owner, SurfCast has the statutory right "[f]or each challenged claim, [to] propose a reasonable number of substitute claims." 35 U.S.C. § 316(d). SurfCast's patent has 52 claims, including 3 independent claims. JA175-177. The Board instituted review on all 52 claims. JA74. Accordingly, SurfCast should have had a statutorily granted right to propose substitute claims for all 52 claims. However, the Board's procedures effectively denied SurfCast the opportunity to propose amendments for each claim and to provide the required support for the amendments. The Board's denial of this right was an abuse of discretion.

The Board's strict page limits, coupled with its numerous substantive requirements, did not permit SurfCast to effectively and reasonably meet the required showings to successfully amend. The regulations set a limit of 15 double-spaced pages in 14-point font for a motion to amend. 37 C.F.R. § 42.24. Within this limited allotment, the motion must include a listing of each substitute claim, the evidence showing written description in the patent specification for each claimed element, and claim constructions for all new terms. 37 C.F.R. § 42.121(b); *see also Toyota Motor Corp. v. Am. Vehicular Sciences LLC*, IPR2013-00419, Paper No. 32, at 5 (PTAB Mar. 7, 2014); *Idle Free Systems, Inc. v. Bergstrom, Inc.*, IPR2012-00027, Paper No. 26, at 7 (PTAB June 11, 2013); *Nichia Corp. v. Emcore Corp.*, IPR2012-00005, Paper No. 27, at 4 (PTAB June 3, 2013). In addition, the motion must set out why the substitute claims are patentable over "the prior art known to the patent owner," not just the prior art of record. *Idle Free*, Paper No. 26, at 7.

In view of these multiple requirements and the limited page allotment, SurfCast requested to place the proposed substitute claims in an appendix, not to

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be counted against the page limit.[7] The Board refused SurfCast's request. JA1188.

Moreover, the Board informed SurfCast that the page limits on motions to amend

would likely place limitations on SurfCast's ability to amend its claims. This use

of page limits to curtail a patent owner's ability to propose amendments is not

unique to this case. *See, e.g.*, IPR2013-00318, Paper No. 22, at 5-6 ("This strategy

may cause Patent Owner difficulty in complying with the fifteen-page limit for a

motion to amend . . . The Board, therefore, recommended that the Patent Owner

carefully consider the number of proposed substitute claims it desires to pursue.").[8]

The Board's denial of the request for the appendix, as well as its use of the

page limits to constrain SurfCast's strategy, was an abuse of discretion. *See*

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[7] The claims of the '403 patent occupy over 3 columns of single spaced text in the original patent. JA175-JA177. When converted to the page format required by the Board, these claims, even without additional space for amendments, would have encompassed 8 of the allotted 15 pages. The request for an appendix is the equivalent of requesting additional pages for the motion to amend. *See Idle Free*, Paper No. 27, at 2-3 (denying Patent Owner's request of additional pages to accommodate listing of amended claims).

[8] The Board has advised other patent owners in a similar manner. *See, e.g., Idle Free*, IPR2012-00027, Paper No. 26, at 6-10, Paper No. 27, at 2; *see also Microsoft Corp. v. Proxyconn, Inc*., 789 F.3d at 1305 (The Federal Circuit also has remarked that "[t]he Board has frequently cited to *Idle Free* when denying motions to amend during IPRs."). SurfCast notes the comments from ALJ Tierney that the Board's order in *Idle Free* (IPR2013-00318, Paper No. 22) is non-precedential, JA1190, but then so too are the reliances by the Board on the *Idle Free* case (including its Paper No. 27) in its Final Decision for the proposition that SurfCast's Motion to Conditionally Amend was insufficient, JA44, JA46. *Idle Free* has since been designated as "informative," but only after the parties presented oral argument in this case.

Bilstad v. Wakalopulos, 386 F.3d 1116 , 1121 (Fed. Cir. 2004) ("An abuse of discretion is found if the decision: (1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact finding; or (4) involves a record that contains no evidence on which the Board could rationally base its decision."). The application of a strict 15-page limit, without regard to the number or length of the original claims to be amended, is arbitrary.[9] The regulations recognize that "one substitute claim would be needed to replace each challenged claim." 37 C.F.R. § 42.121(a)(3); *see also Idle Free*, Paper No. 27 at 4 (citing same). Yet the Board provided no reasonable basis for why the claims could not be moved to an appendix to accommodate the lengthy listing. Indeed, in October 2014, the Board altered its procedures in another IPR to permit the placement of amended claims in a separate appendix.[10] *See Corning Optical Communications RF, LLC v. PPC Broadband, Inc*., IPR2014-00441, Paper No. 19, at 2 (PTAB Oct. 30, 2014). But the Board had arbitrarily denied this same right to SurfCast ten months earlier.

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[9] For comparison, to address all 52 claims and the 7 prior art references, the Petitioner filed 4 IPR petitions, each allotted 60 pages. The regulations thus permitted 240 pages to challenge the claims, but only 15 pages to amend and support these same 52 claims.

[10] The Board has also since expanded the page limits for motions to amend from 15 to 25 pages. Federal Register, Vol. 80, No. 96 at 28562 (May 19, 2015).

The Board's refusal to expand the page allocation limited SurfCast's choice of which claims to amend.[11] This effectively constrained SurfCast's statutory right to propose amendments and interfered with SurfCast's due process right to protect its patent. *See Abbott Labs. v. Cordis Corp.*, 710 F.3d 1318, 1327 (Fed. Cir. 2013) (a patent owner's rights are protected by the Due Process Clause); 35 U.S.C. § 316(d) (statutorily provided right to propose amendments for all challenged claims). SurfCast was constrained to select only the shortest independent claim and 6 dependent claims (claims 46-52). *See* JA726. It had to forgo amendment of other claims such as independent claim 1 and its dependent claims 2–21, as well as independent claim 22, and dependent claims 23–45.

And even with the selected subset of claims, the Board's procedures further abrogated SurfCast's rights. The recitation of only the seven selected claims required more than two pages of the allotted fifteen. JA727-729. SurfCast was left with only 13 pages to meet the Board's remaining detailed and lengthy requirements to address written description, claim construction and the universe of prior art. In evaluating SurfCast's motion, the Board identified omissions that would have required substantially more pages to address. For example, the Board

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[11] The Board permitted SurfCast to file a Corrected Motion to Amend, but this second motion addressed only minor ambiguities from the original filing and did not address additional claims. JA833.

required identification of support in the patent for every claim feature, including the non-amended claim terms. JA46. The Board also faulted SurfCast for failing to address "the prior art *in general*," not just the 7 pieces of prior art at issue in the IPR. JA46. This is despite SurfCast's having dedicated 10 pages to addressing the validity of the claims in view of the prior art, including prior art not relied on in the Institution Decision.

The potential to amend claims has been cited as justifying the lower "broadest reasonable interpretation" standard for claim construction in IPRs, rather than the *Phillips* standard applied in district court. *In re Cuozzo*, 778 F.3d at 1280; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). IPRs also use a lower preponderance of the evidence standard to evaluate anticipation and obviousness, 35 U.S.C. § 316(e), in contrast to the much higher clear and convincing evidence applied to these invalidity issues by district courts. *Microsoft Corp. v. i4i LP*, 131 S. Ct. 2238, 2242 (2011). Yet in actuality, the ability to amend claims in IPRs is "almost entirely illusory." *See In re Cuozzo*, 778 F.3d at 1291) (Newman, J., dissenting). Here, it was entirely illusory for 45 of the 52 claims of the '403 patent that could not be included in the motion, and effectively illusory for even the claims that could be included.

Procedural safeguards are critical to securing a patent owner's rights, given that its patent rights may be more easily challenged in the IPR forum. Procedures

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must allow a patent owner sufficient pages to present substitutes for all challenged

claims, as well as sufficient pages to justify the amendments in view of the

universe of prior art as required by the Board. The PTO has recently adjusted the

page limits for motions to amend, expanding the limit from 15 to 25 pages, and

now permits the amended claims to be placed in an appendix that is not counted

against the increased page allocation. Federal Register, Vol. 80, No. 96 at 28562

(May 19, 2015). Also, the Board has very recently clarified the scope of the prior

art applicable to the examination of the amended claims. *Masterimage 3D, Inc.*

and Masterimage 3D Asia, LLC v. Reald Inc., Case No. IPR2015-00040, Paper No.

42 (PTAB July 15, 2015). Such protections, however, were denied to SurfCast.

The Board arbitrarily applied its procedures and rules for amending claims

to constrain SurfCast's statutorily granted rights and interfered with its due process

rights as a patent owner. In view of this loss, the Board's denial of SurfCast's

motion to amend should be reversed and SurfCast should be granted the

opportunity to be fully heard, including through an appendix to list the

amendments for all of the challenged claims and a sufficient number of pages to

address all of the Board's substantive requirements for amendments.[12]

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[12] If this Court reverses the Board's decision on anticipation by the prior art for
certain references, amendment of all claims will be unnecessary and only a subset
of claims may need to be addressed on remand.

VI.   CONCLUSION

The Board's legally erroneous and unsupported findings that MSIE Kit, Chen, Duperrouzel and Duhault II anticipate the '403 patent should be reversed, and the Court should hold that claims 1–16, 18, 19, 21–24, 26, 27, and 30–52 of the '403 patent are patentable. In the alternative, the Court should reverse the Board's denial of SurfCast's motion to amend claims and remand with additional due process safeguards for the further consideration of a full set of substitute claims.

Respectfully submitted,

Dated: August 18, 2015

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ADDENDUM TO BRIEF

JA00001 – JA00064   Final Written Decision of Patent Trial and Appeal Board

JA00065 – JA00073   Final Written Decision on Request for Rehearing of
                         Patent Trial and Appeal Board

JA00135 – JA00179   U.S. Patent No. 6,724,403

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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MICROSOFT CORPORATION,
Petitioner,

v.

SURFCAST, INC.,
Patent Owner.

_____

Cases IPR2013-00292, IPR2013-00293,
IPR2013-00294, and IPR2013-00295
Patent 6,724,403

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Before MICHAEL P. TIERNEY, JONI Y. CHANG, and
MATTHEW R. CLEMENTS, *Administrative Patent Judges*.

CLEMENTS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

IPR2013-00292, IPR2013-00293,
IPR2013-00294, IPR2013-00295
Patent 6,724,403

I.   INTRODUCTION

Petitioner, Microsoft Corporation ("Microsoft"), filed four Petitions requesting *inter partes* review of claims 1–52 ("the challenged claims") of U.S. Patent No. 6,724,403 (Ex. 1001, "the '403 patent") pursuant to 35 U.S.C. §§ 311–319. Patent Owner, SurfCast, Inc. ("SurfCast"), filed a preliminary response in each of the four proceedings:

Case No.	Claims	Petition Paper No.	Preliminary Response Paper No.
IPR2013-00292	1–13 and 15–21	Paper 6 ("292 Pet.")	Paper 18 ("292 Prelim. Resp.")
IPR2013-00293	22–45	Paper 5 ("293 Pet.")	Paper 13 ("293 Prelim. Resp.")
IPR2013-00294	46–52	Paper 4 ("294 Pet.")	Paper 13 ("294 Prelim. Resp.")
IPR2013-00295	1–3, 5–8, 11–17, 19–22, 25, 27, 28, 30, 32, 34, 37–40, 43–47, and 50–52	Paper 3 ("295 Pet.")	Paper 13 ("295 Prelim. Resp.")

On November 19, 2013, the Board granted an *inter partes* review for all challenged claims on less than all of the grounds of unpatentability alleged in the Petitions. Paper 19.[1]

After institution of trial, SurfCast filed a Patent Owner's Response. Paper 27. SurfCast also filed a Motion to Amend Claims that requests substituting proposed new claims 53–59 for claims 46–52, respectively— contingent upon a determination of unpatentability. Paper 28. Microsoft filed a Reply to Patent Owner's Response (Paper 45), and an Opposition to Patent Owner's Motion to Amend Claims (Paper 46). Microsoft then filed a

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[1] All citations are to IPR2013-00292, unless otherwise noted.

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Corrected Reply to Patent Owner's Response. Paper 54. SurfCast then filed a Reply to Microsoft's Opposition to Patent Owner's Motion to Amend. Paper 62. Finally, SurfCast filed a Corrected Motion to Amend (Paper 76), and Microsoft filed a Supplemental Opposition to Patent Owner's Corrected Motion to Amend (Paper 84).

Additionally, Microsoft filed a Motion to Exclude Evidence (Paper 67), to which SurfCast responded (Paper 81). Microsoft filed a Reply in Support of Its Motion to Exclude. Paper 83.

SurfCast also filed a Motion to Exclude Evidence (Paper 72) to which Microsoft responded (Paper 79). SurfCast filed a Reply in Support of Its Motion to Exclude. Paper 85.

Oral hearing was held on July 10, 2014.[2]

The Board has jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

Microsoft has shown by a preponderance of the evidence that claims 1–52 of the '403 patent are unpatentable. SurfCast's Motion to Amend Claims is denied.

A. Related Proceeding

Microsoft indicates that the '403 patent is asserted in *SurfCast, Inc. v. Microsoft Corp.*, No. 2:12-cv-00333 (D. Me.). 292 Pet. 1–2.

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[2] A transcript of the oral hearing is included in the record as Paper 90 ("Tr.").

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B. The '403 Patent

The subject matter of the '403 patent relates to a graphical user interface that organizes content from a variety of information sources into a grid of tiles, each of which can refresh its content independently of the others. Ex. 1001, Abstract. As described in the "Background of the Invention," at the time of the invention, display technologies lacked a user interface capable of presenting any type of information in a consistent manner and in such a way that all open channels could indicate their activity on a continual basis. *Id.* at 4:24–31. In response to this need, the '403 patent describes a graphical user interface comprising a grid of tiles that resides on the user's computer desktop. *Id.* at 4:37–38. The grid of tiles provides a uniform graphical environment in which a user can access, operate, and/or control multiple data sources on electronic devices. *Id.* at 4:37–41. Figure 1 is reproduced below.
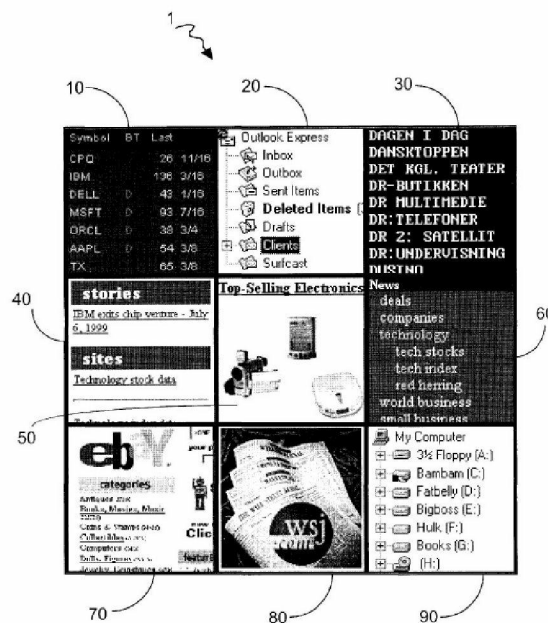
Figure 1 illustrates an embodiment of the graphical user interface. *Id.* at 6:38–39.

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C. Illustrative Claims

Of the challenged claims, claims 1, 22, and 46 are independent claims.

Claims 1 and 22 are illustrative and are reproduced below:

1.   A method executed by a device under the control of a program, said device including a memory for storing said program, said method comprising:

selecting a plurality of information sources;

partitioning a visual display of the device into an array of tiles, wherein each tile in said array of tiles is associated with an information source in said plurality of information sources;

assigning a first refresh rate to a first tile of said array of tiles and a second refresh rate to a second tile of said array of tiles;

updating information from a first information source in said plurality of information sources presented to said first tile in accordance with said first refresh rate; and

simultaneously updating information from a second information source in said plurality of information sources presented to said second tile in accordance with said second refresh rate.

22.   An electronic readable memory to direct an electronic device to function in a specified manner, comprising:

a first set of instructions to control simultaneous communication with a plurality of information sources;

a second set of instructions to arrange a display into an array of tiles;

a third set of instructions to associate a first information source of said plurality of information sources to a first tile of said array of tiles and a second information source of said plurality of information sources to a second tile of said array of tiles;

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> a fourth set of instructions to retrieve information from said first information source in accordance with a first retrieval rate and retrieve information from said second information source in accordance with a second retrieval rate; and

> a fifth set of instructions to present information to said first tile in accordance with said first retrieval rate and present information to said second tile in accordance with said second retrieval rate.

D. Prior Art Supporting the Instituted Challenges

Microsoft relies on the following prior art references, as well as the Declaration of Dr. David R. Karger (Ex. 1003):

Chen	US 5,432,932	July 11, 1995	Ex. 1015
Brown	US 6,278,448 B1	Aug. 21, 2001	Ex. 1030
Duhault ("Duhault II")	US 6,456,334 B1	Sept. 24, 2002	Ex. 1014
Duperrouzel	US 6,832,355 B1	Dec. 14, 2004	Ex. 1011
Microsoft Internet Explorer Resource Kit, Microsoft Press (1998) ("MSIE Kit")			Exs. 1007, 1008, 1009, 1010

E. The Instituted Challenges of Unpatentability

We instituted the instant trial based on the following grounds of unpatentability:

Reference[s]	Basis	Claims Challenged
Duhault II	§ 102(e)	1–13, 17–28, 30–33, 35–37, 39–43, and 46–50
Chen	§ 102(b)	1, 9–11, 22, 41–43, 46, and 48–50
Chen and MSIE Kit	§ 103(a)	29

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Reference[s]	Basis	Claims Challenged
MSIE Kit	§ 102(b)	1–3, 5–8, 11, 12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37–40, 43–47, and 50–52
MSIE Kit and Brown	§ 103(a)	17, 20, 25, and 28
Duperrouzel	§ 102(e)	1–3, 5–8, 12–14, 19, 21, 22, 27, 30, 32, 34, 37–40, 46, and 47
Duperrouzel and Brown	§ 103	17, 20, 25, and 28

II. ANALYSIS

A. Claim Construction

Consistent with the statute and the legislative history of the AIA, we interpret claims by applying the broadest reasonable construction in the context of the specification in which the claims reside. 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). Claim terms also are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

An inventor may rebut that presumption by providing a definition of the term in the specification. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Id.*

1. "tile"

All of the challenged claims require a "tile." The '403 patent states that, "[w]hen a tile is selected, whether by mouse click or otherwise, the tile

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instantly provides the user with access to the underlying information."
Ex. 1001, 9:25–27. The '403 patent further provides that, "[a] tile is
different from an icon because it provides a real-time or near-real time view
of the underlying information in that it contains continually refreshed
content." *Id.* at 8:36–38; *see id.* at 9:32–33. Accordingly, in the Decision to
Institute, the Board construed "tile" as "a graphical user interface element
whose content may be refreshed and that, when selected, provides access to
an information source." Dec. 9–11.

SurfCast asserts that "tile" should be construed as "a graphical user
interface element whose content may be refreshed, that is persistent, and
that, when selected, provides access to an information source <u>assigned to the
tile</u>." PO Resp. 3–5 (emphasis original) (citing Ex. 1001, Figs. 5, 6, 9:25–
32, 11:1–3, 11:23–25; Ex. 2004 ¶¶ 43, 44). Microsoft argues that the
proposed modification is (1) superfluous; (2) in conflict with other terms in
the claim, which recites "associating" an information source with the tile;
and (3) inserts the word "tile" into the definition of "tile." Pet. Reply 2–3.
We agree with Microsoft that SurfCast's proposed claim construction is
inconsistent with the language of the independent claims. Independent claim
1 explicitly requires that "each tile in said array of tiles is *associated* with an
information source." Independent claims 22 and 46 recite commensurate
limitations. To the extent that there is no conflict between the proposed
construction and the language of the claim because "assigned" and
"associated" have the same scope in light of the '403 patent, the proposed
modification is superfluous.

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SurfCast also asserts that the Board's construction is overly broad because it does not require a tile to be "persistent." PO Resp. 6–11. Specifically, SurfCast argues that the Board mischaracterized a "description of implementation details" at column 15, lines 54 to 64 of the '403 patent as a "preferred embodiment." *Id.* at 6–7. As SurfCast concedes, however, column 15 describes an "exemplary implementation." *Id.* at 6–7. Microsoft argues that the Board is not permitted to read "implementation details" into the claims without a clear an unambiguous disclaimer, and that SurfCast identifies no such disclaimer. Pet. Reply 2 (citing *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1367 (Fed. Cir. 2012)). We agree with Microsoft. None of the passages of the '403 patent relied upon by SurfCast "define" a "tile" as requiring persistence. We, therefore, decline to import that limitation from an exemplary implementation.

SurfCast also argues that (1) a person of ordinary skill in the art would recognize that tiles are persistent (PO Resp. 7); (2) persistence is a necessary and fundamental property of tiles (*id.* at 7–8); and (3) the '403 patent does not describe any embodiment that requires or even permits a tile to be not persistent (*id.* at 8). Microsoft counters that (1) there is no evidence that "persistence" is definitional; (2) SurfCast's conception and diligence evidence do not use the word "persistent;" (3) Mr. Ovid Santoro, a named inventor of the '403 patent, is aware of no document during the periods of alleged conception and diligence that show "persistence" was considered part of the invention; and (4) "persistence" does not distinguish a tile from a window. Pet. Reply 1. We agree with Microsoft that the '403 patent does not set forth with reasonable clarity, deliberateness, and precision a

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definition of "tile" as requiring persistence. The '403 patent uses "persistent," to mean "not saved explicitly but [] preserved from session to session." Ex. 1001, 15:63–64 ("Items in the metabase are 'persistent,' that is they are not saved explicitly but are preserved from session to session."). That term is applied, however, only to the "preferred embodiment" depicted in Figure 17. *Id.* at 6:7–9. None of the passages relied upon by SurfCast preclude an embodiment in which a "tile" is saved explicitly. Several passages cited by SurfCast describe persistence as a feature of a "grid" of tiles, but the claims recite an "array," not a "grid." Even assuming that persistence is necessary to the functioning of an "array of tiles," a claim need not recite every structure or function necessary to carry out the invention. *Rodime PLC v. Seagate Techs., Inc.*, 174 F.3d 1294, 1303 (Fed. Cir. 1999). As a result, we decline to construe "tile" to require persistence.

Finally, SurfCast argues that a window is not within the Board's construction of "tile." PO Resp. 5–6, 11–12. SurfCast does not, however, propose a modification to the Board's construction, and we are not persuaded any modification is necessary.

Accordingly, the Board maintains its construction of "tile" as "a graphical user interface element whose content may be refreshed and that, when selected, provides access to an information source."

2. *"partitioning a visual display of the device into an array of tiles"*

The phrase "partitioning a visual display of the device into an array of tiles" appears in claim 1. In the Decision to Institute, the Board construed "partitioning a visual display of the device into an array of tiles" as "dividing a display or window into two or more tiles." Dec. 12–13.

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SurfCast asserts that "partitioning a visual display of the device into an array of tiles" should be construed to require that the tiles be non-overlapping because the '403 patent describes "the present invention" as "comprising the steps of: partitioning a visual display of a computer into an array of tiles <u>in a non-overlapping configuration</u>." PO Resp. 13–14 (emphasis original) (citing Ex. 1001, 4:55–59). Microsoft counters that the testimony of Mr. Glenn Weadock, SurfCast's declarant in support of SurfCast's proffered construction, is irrelevant extrinsic evidence, and that the use of the phrase "the present invention" does not support SurfCast's position. Pet. Reply 3–4.

We are unpersuaded by SurfCast's arguments. As Microsoft points out, if the '403 patent used the term "partitioning" to mean "*in a non-overlapping configuration*," the clause "*in a non-overlapping configuration*" would be superfluous. Pet. Reply 4. Its presence implies that "partitioning" alone does not connote "in a non-overlapping configuration."

SurfCast also argues that non-overlap is "essential to all embodiments of the invention" (PO Resp. 16), but as we discussed above, a claim need not recite every structure or function necessary to carry out the invention. *Rodime*, 174 F.3d at 1303. Microsoft points out that dependent claim 3 limits the array of tiles to a "non-overlapping configuration," but independent claim 1 is not so limited. Pet. 7, 9. SurfCast counters that claim differentiation is not implicated because claim 3 recites limitations in addition to "non-overlapping." PO Resp. 16–18. SurfCast concedes, however, that its proposed construction would render superfluous the words "non-overlapping" in claim 3. Tr. 55–56. Claims should not be construed

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so as to render terms redundant or superfluous. *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) ("[C]laims are interpreted with an eye toward giving effect to all terms in the claim."). We, therefore, are not persuaded that "partitioning" should be construed to include "non-overlapping."

Accordingly, the Board maintains its construction of "partitioning a visual display of the device into an array of tiles" as "dividing a display or window into two or more tiles."

3. *"refresh rate" / "retrieval rate"*

The phrase "refresh rate" appears in claims 1, 4, 6, 7, 10, and 11. The phrase "retrieval rate" appears in claims 22, 31, 33, 39, 42, 43, 46, 49, and 50. In the Decision to Institute, the Board construed "refresh rate / retrieval rate" as "a recurring time interval at which information displayed in a tile is refreshed or retrieved." Dec. 14–15.

SurfCast asserts that the Board's construction is overly narrow because it is limited to "a recurring time interval," and, therefore, erroneously excludes aperiodic rates. PO Resp. 18–26. Microsoft counters that (1) SurfCast's reliance on extrinsic evidence is improper; (2) SurfCast's proposed construction is broader than the Board's construction, and therefore does not impact patentability; and (3) SurfCast's argument was previously considered and rejected. Pet. Reply 4–5.

Upon consideration of SurfCast's proposed claim constructions, arguments, and supporting evidence, we agree with SurfCast that the broadest reasonable construction of "refresh rate" / "retrieval rate" encompasses aperiodic rates. Specifically, we are persuaded that the claim

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language is not sufficiently "clearly limited to one or more embodiments." *TIP Systems, LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1375 (Fed. Cir. 2008). The '403 patent describes an example of the grid managing the "refresh rate" of a tile associated with "locally stored word processing or spread sheet files," in which the tile is configured "to refresh only when the underlying data is written to the local hard drive." Ex. 1001, 12:50–56. Even if such a "refresh rate" is limited only to embodiments involving a locally stored word processing or spreadsheet file, nothing in the language of the independent claims precludes the recited "information source" from being a locally stored word processing or spreadsheet file.

Accordingly, we construe "refresh rate" / "retrieval rate" as "a criteria upon which information displayed in a tile is refreshed or retrieved."

4. "user-defined array size"

The phrase "user-defined array size" appears in claim 2. The '403 patent states that "a user may specify a presentation of the grid, consisting of its dimensions, (i.e., the number of tiles to display and their arrangement)." Ex. 1001, 11:9–11. Accordingly, in the Decision to Institute, the Board construed "user-defined array size" as "the number and arrangement of tiles to display, as specified by the user." Dec. 16.

SurfCast asserts that "user-defined array size" should be construed as "the number and arrangement of tile *positions* in the array as specified by the user." PO Resp. 26–27 (citing Ex. 1001, 11:9–11; Ex. 2004 ¶ 66). Microsoft counters that the phrase "tile positions" does not appear in the '403 patent. Microsoft is correct. SurfCast's citation to the '403 patent provides no support for SurfCast's proposed user-specified array tile

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"positions;" it refers only to the number and arrangement of tiles, as does the Board's construction. Mr. Weadock testifies that the plain and ordinary meaning of "arrangement" includes positioning, but provides no evidence to support that assertion. Ex. 2004 ¶ 66.

Accordingly, the Board maintains its construction of "user-defined array size" as "the number and arrangement of tiles to display, as specified by the user."

B. Antedating Duhault II

SurfCast seeks to disqualify Duhault II as prior art by establishing a date of invention prior to the filing date of Duhault II. PO Resp. 28–36.

The '403 patent claims the benefit of an earlier filing date, October 29, 1999, through a provisional application. Microsoft asserts that Duhault II qualifies as prior art under 35 U.S.C. § 102(e). *See, e.g.,* 292 Pet. 2, 25. Duhault II has an actual filing date of June 29, 1999. Although Duhault II was filed before the earliest effective filing date of the '403 patent, 35 U.S.C. § 102(e)(2) requires the prior art patent to have been filed "before the invention by the applicant for patent." *See, e.g., Loral Fairchild Corp. v. Matsushita Elec.,* 266 F.3d 1358, 1362 (Fed. Cir. 2001). An inventor "may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part, so that they are substantially one continuous act." *Mahurkar v. C.R. Bard, Inc.,* 79 F.3d 1572, 1577 (Fed. Cir. 1996) (internal citation and quotations omitted).

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Conception

"Conception must be proved by corroborating evidence which shows that the inventor disclosed to others his completed thought expressed in such clear terms as to enable those skilled in the art to make the invention." *Coleman v. Dines*, 754 F.2d 353, 359 (Fed. Cir. 1985). The requirement for corroboration of inventor's testimony arose out of a concern that inventors testifying at trial would be tempted to remember facts favorable to their case by the lure of protecting their patent or defeating another's patent. *Mahurkar*, 79 F.3d at 1577 (citing *Price v. Symsek*, 988 F.2d 1187, 1195 (Fed. Cir. 1993)); *see also Kridl v. McCormick*, 105 F.3d 1446, 1449 (Fed. Cir. 1997) ("The tribunal must also bear in mind the purpose of corroboration, which is to prevent fraud, by providing independent confirmation of the inventor's testimony."). However, "[t]here is no particular formula that an inventor must follow in providing corroboration of his testimony of conception." *Singh v. Brake*, 222 F.3d 1362, 1367 (Fed. Cir. 2000) (citing *Kridl*, 105 F.3d at 1450). Rather, a rule of reason applies to determine whether the inventor's testimony has been corroborated. *Price*, 988 F.2d at 1194. "The rule of reason, however, does not dispense with the requirement for some evidence of independent corroboration." *Coleman*, 754 F.2d at 360.

In their declarations, inventors Ovid Santoro and Klaus Lagermann testify that they conceived the subject matter of each of the challenged claims prior to June 29, 1999, the filing date of Duhault II ("the critical date"). Ex. 2005, 2–11; Ex. 2006, 2–7. To corroborate Mr. Santoro's and Mr. Lagermann's testimony, SurfCast submits emails exchanged between

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Mr. Santoro and Mr. Lagermann (Exs. 2024–2029, 2036), entries from Mr.
Santoro's notebook (Ex. 2023), white papers (Exs. 2037, 2067, 2068),
photographs of a flip chart (Ex. 2041), and a letter from SurfCast's attorneys
(Ex. 2009). PO Resp. 30–32. SurfCast also summarizes its conception
evidence. Ex. 2065.

Microsoft counters that SurfCast's reliance on *Mahurkar* for the
principle that corroboration is not required for physical exhibits is inapposite
because it is the technical content of a document—not the date—that does
not require corroboration. Pet. Reply 6. According to Microsoft, SurfCast
was required to corroborate the dates of its conception documents with non-
inventor evidence, and it failed to do so, with the exception of an email
(Ex. 2024) to Dixon Dick, who has not testified in this proceeding. Hence,
Microsoft contends that SurfCast's evidence consists only of documents
drafted by and communicated between the inventors. Pet. Reply 6–7.

The exhibits offered by SurfCast to establish conception have been
challenged as to authenticity. Paper 67, 4–5 (challenging Exs. 2023–2029,
2034, 2036–2038, 2067, and 2068). SurfCast did not cure this defect. To
authenticate these documents, SurfCast provides only inventor testimony.
Paper 81, 5 (relying on testimony of Mr. Santoro); Ex. 2005 ¶¶ 10 (regarding
Exs. 2024–2029 and 2036), 13 (regarding Ex. 2023), 17 (regarding Exs.
2037, 2038, 2067, and 2068), 33 (regarding Ex. 2034). Inventor testimony
is not sufficient to authenticate a document offered to corroborate the
inventor's testimony. The purpose of corroboration is to prevent fraud by
providing *independent* confirmation of the inventor's testimony. *See, e.g.,*

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Kridl, 105 F.3d at 1449. A document authenticated by only an inventor does not achieve that purpose because it is not sufficiently independent.

SurfCast asserts that Mr. Santoro's notebook (Ex. 2023) can serve to establish conception because corroboration is not required when a party seeks to prove conception through the use of physical exhibits. PO Resp. 31, n.4 (citing *Mahurkar*, 79 F.3d at 1577 ("This court does not require corroboration where a party seeks to prove conception through the use of physical exhibits.")). SurfCast's reliance on *Mahurkar* is misplaced. The principle that corroboration is not required when a party seeks to prove conception through the use of physical exhibits is directed to the technical content of a document, not to the date or origin of the document. The law requires sufficient proof for the date and identity of a physical exhibit offered to show conception. *Price*, 988 F.2d at 1194–95. Here, the date of the physical exhibits is not corroborated sufficiently for the reasons discussed above.

On this record, and under a rule-of-reason analysis, the earliest date of conception we accord SurfCast is October 29, 1999, the filing date of the provisional application to which the '403 patent claims benefit. Because Duhault II was filed June 29, 1999, SurfCast has not antedated Duhault II successfully.

Reasonable Diligence

Although SurfCast has failed to prove an earlier conception and antedate the effective date of the Duhalt II reference, we exercise our discretion and analyze SurfCast's alleged diligence to a reduction to practice. During the period in which reasonable diligence must be shown,

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there must be continuous exercise of reasonable diligence. *In re McIntosh*, 230 F.2d 615, 619 (CCPA 1956); *see also Burns v. Curtis*, 172 F.2d 588, 591 (CCPA 1949) (referring to "reasonably continuous activity"). A party alleging diligence must account for the entire critical period. *Griffith v. Kanamuru*, 816 F.2d 624, 626 (Fed. Cir. 1987); *Gould v. Schawlow*, 363 F.2d 908, 919 (CCPA 1966).

Even a short period of unexplained inactivity is sufficient to defeat a claim of diligence. *Morway v. Bondi*, 203 F.2d 742, 749 (CCPA 1953); *Ireland v. Smith*, 97 F.2d 95, 99–100 (CCPA 1938). In *In re Mulder*, 716 F.2d 1542, 1542–46 (Fed. Cir. 1983), the Federal Circuit affirmed a determination of lack of reasonable diligence, where the evidence of record was lacking for a two-day critical period. Likewise, in *Rieser v. Williams*, 255 F.2d 419, 424 (CCPA 1958), there was no diligence where no activity was shown during the first 13 days of the critical period.

A party alleging diligence must provide corroboration with evidence that is specific both as to facts and dates. *Gould*, 363 F.2d at 920; *Kendall v. Searles*, 173 F.2d 986, 993 (CCPA 1949). The rule of reason does not dispense with the need for corroboration of diligence that is specific as to dates and facts. *Gould*, 363 F.2d at 920; *Kendall*, 173 F.2d at 993; *see Coleman v. Dines*, 754 F.2d 353, 360 (Fed. Cir. 1985).

In their declarations, Mssrs. Santoro and Lagermann testify that the subject matter of each of the challenged claims was diligently reduced to practice from at least June 29, 1999 until October 29, 1999, the filing date of the provisional application to which the '403 patent claims benefit. To corroborate Mr. Santoro's and Mr. Lagermann's testimony, SurfCast

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submitts invoices from SurfCast's law firm (Exs. 2049, 2050), time entries
of Dr. Richard Bone (Ex. 2035), a Declaration of Dr. Bone (Ex. 2008), and a
Declaration of Tom Dechaene, co-founder of SurfCast (Ex. 2007). SurfCast
also summarizes Dr. Bone's time entries (Ex. 2051) and activity (Ex. 2052).

Microsoft counters that (1) Dr. Bone is an interested party and his
testimony must therefore be corroborated to counter bias; (2) Dr. Bone's log
book (Ex. 2035) lacks corroboration because there is no evidence of when
the entries were made and their accuracy other than Dr. Bone's testimony;
(3) the log book entries cannot be linked reliably to any element of the
claimed invention; and (4) Dr. Bone did not work on the application that
issued as the '403 patent for significant portions of the critical period. Pet.
Reply 7–9.

Dr. Bone has a financial interest in the outcome of the co-pending
district court case involving the '403 patent and, as a result, has a financial
interest in the outcome of this proceeding. Ex. 2073, 19:6–9; 64:19–65:22.
As an interested party, his testimony must be corroborated by documentary
evidence. *Lacks Indus., Inc. v. McKechnie Vehicle Components USA, Inc.*,
322 F.3d 1335, 1350 (Fed. Cir. 2003). To corroborate that testimony,
SurfCast relies upon Dr. Bone's log book (Ex. 2035) and two invoices from
a law firm to SurfCast (Exs. 2049 and 2050). However, the exhibits offered
by SurfCast to establish reasonable diligence have been challenged as to
authenticity. Paper 67, 2–5 (challenging Exs. 2035, 2049, and 2050).
SurfCast did not cure this defect. To authenticate Dr. Bone's log book,
SurfCast provides only Dr. Bone's testimony. Ex. 2008 ¶ 10. To
authenticate the invoices, SurfCast provides only the testimony of Mr.

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Santoro. Paper 81, 5 (relying on testimony of Mr. Santoro); Ex. 2005 ¶¶ 27 (regarding Exhibit 2049), 45 (regarding Exhibit 2050). As discussed above, the testimony of an interested party, such as Mr. Santoro and Dr. Bone, is not sufficient to authenticate a document offered for purposes of corroboration. The purpose of corroboration is to prevent fraud by providing *independent* confirmation of the interested party's testimony. *See, e.g., Kridl*, 105 F.3d at 1449. A document authenticated by only an interested party does not achieve that purpose because it is not sufficiently independent.

Even if corroborated, Dr. Bone's log book does not show sufficiently the continuous exercise of reasonable diligence during the entire critical period. Even excluding weekends, Dr. Bone did not perform any activity for SurfCast on June 29–30, July 1, July 6–8, August 5–6, August 9–10, August 20, August 23, August 25–27, September 6–10, September 15, September 20–21, September 24, September 28, October 1, October 11, October 14–15, October 20, and October 27. Ex. 2035, 14–134. Moreover, seventeen days on which Dr. Bone logged activity for SurfCast involved activity of 45 minutes or less. *Id.* In addition, Microsoft argues that Dr. Bone's activity was "contrary to reasonable diligence" because he worked on later-assigned matters out of chronological order. Reply 9. Dr. Bone explains that he was hired as a law clerk days before being assigned the application that led to the '403 patent, and that "when starting the process of populating my docket with a full load of work, it was not necessarily possible to take on work strictly chronologically in the sense of managing an initial influx of work according to the most immediate due-dates." Ex. 2008 ¶ 15. "[I]t is not

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necessary that an inventor or his attorney should drop all other work and concentrate on the particular invention involved; and if the attorney has a reasonable backlog of work which he takes up in chronological order and carries out expeditiously, that is sufficient." *Rines v. Morgan*, 116 U.S.P.Q. 145 (C.C.P.A. 1957). However, that has not been shown in this case. Here, the evidence reflects an entire week of inactivity in addition to numerous gaps, and Dr. Bone acknowledges that he worked on later-assigned matters, and worked on them out-of-order. Reply 9 (citing Ex. 1102).

On this record, and under a rule-of-reason analysis, we cannot conclude that there was reasonably continuous activity toward reducing the invention to practice sufficient to support a determination of reasonable diligence.

C. Anticipation by Duhault II

Microsoft alleges that claims 1–13, 17–28, 30–33, 35–37, 39–43, and 46–50 are unpatentable under 35 U.S.C. § 102(e) as anticipated by Duhault II. 292 Pet. 25–27; 293 Pet. 27–29; 294 Pet. 20–21.

SurfCast counters that Duhault II does not disclose all of the claim limitations recited in dependent claims 1, 22, and 46, or in independent claims 4, 10, 31, 42, and 49. PO Resp. 28–39.

Upon consideration of the parties' contentions and supporting evidence, we determine that Microsoft has demonstrated by a preponderance of evidence that claims 1–13, 17–28, 30–33, 35–37, 39–43, and 46–50 are anticipated by Duhault II. In our discussion below, we address SurfCast's arguments presented in the Patent Owner Response, focusing on the disputed claim limitations.

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Duhault II

Duhault II describes a method and system for displaying video wherein multiple tuners are used to display multiple video images within a scaleable window. Ex. 1014, 1:65–67. The term "video image" refers to a unique channel of video received in the form of an analog or digital signal from a satellite, a cable network, the internet, or other on-demand video device. *Id.* at 3:1–9. One tuner provides a full-motion video to a first image, which is generally a larger image residing within the entire window. *Id.* at 2:1–3. A second tuner provides periodic refreshing to the other generally smaller windows. *Id.* at 2:3–5. Selection of the smaller windows allows for periodic full-motion video, individual full-motion video, switching of location, audio feed, and other desirable manipulation of video images. *Id.* at 2:5–8.

Figure 1 of Duhault II is reproduced below to depict Duhault II's display device having a plurality of video images:
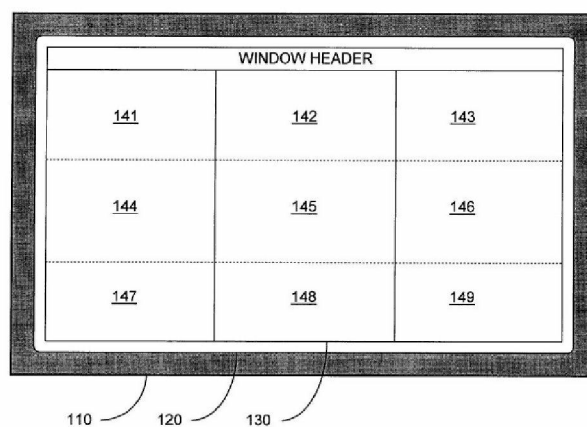
FIGURE 1

As shown in Figure 1 of Duhault II, display device 110 has screen area 120, substantially all of which is taken up by window 130. *Id.* at 2:16–20. In the embodiment depicted, window 130 has a window header and displays nine

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video images 141 to 149. *Id.* at 2:27–29. In other embodiments, window 130 may not have a window header or may have more or fewer video images displayed. *Id.* at 2:29–31.

Tile

Independent claims 1, 22, and 46 recite "tiles." In its Petitions, Microsoft asserts that Duhault II's video images disclose the "tile" claim feature. 292 Pet. 26 (citing Ex. 1003 ¶¶ 680–686); 293 Pet. 28 (citing Ex. 1003 ¶¶ 709–717); 294 Pet. 21 (citing Ex. 1003 ¶¶ 736–745). SurfCast contends that Duhault II's video images are not the recited "tiles" because "they are not assigned individual refresh rates." PO Resp. 36–37. As an initial matter, neither the claim language nor our construction of "tile" requires an "individual" refresh rate. Mr. Weadock testifies that Duhault II does not disclose assigning refresh rates because it is "conceivable" that the video images could be refreshed at "random intervals." Ex. 2004 ¶ 94. We are not persuaded by Mr. Weadock's testimony because we construe "refresh rate" / "retrieval rate" to encompass aperiodic rates for the reasons discussed above. The '403 patent explicitly describes an embodiment in which a tile may be refreshed at random intervals (i.e., only when the associated information source is written to the local hard drive). Ex. 1001, 12:50–56. Mr. Weadock also testifies that Duhault II's video images may be refreshed at a periodic, but not predetermined, rate. Ex. 2004 ¶ 94. However, neither the claim language nor our construction of "refresh rate" / "retrieval rate" requires that the "refresh rate" / "retrieval rate" be "predetermined."

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We also understand SurfCast to be arguing that Duhault II does not disclose the claimed step of "assigning a first refresh rate to a first tile of said array of tiles and a second refresh rate to a second tile of said array of tiles" because "the refresh rate is not assigned to the video image itself, but rather is a property of the tuner." PO Resp. 36. Duhault II describes embodiments in which a first portion of video images is refreshed by a first tuner while a second portion of video images is periodically refreshed by a second tuner. *Id.* (citing Ex. 1014, 3:9–24). If the first portion consists of only a single video image, that video image is refreshed at full-motion video rate by a first tuner while the second portion, consisting of multiple video images are refreshed by a second tuner at less than full-motion video rate. Ex. 1014, 3:24–30. In other words, the refresh rate of a video image is determined by the number of other video images assigned to the same tuner. Thus, Duhault II's disclosure of assigning one or more video images to a "first portion" and a "second portion" discloses the assignment of a "refresh rate" to each of those video images.

SurfCast also contends that Duhault II's video images are not the recited "tiles" because they are not "selectable to provide access to an information source," as we have construed "tile" to require. PO Resp. 36–37. The '403 patent describes an embodiment in which a tile, when selected, provides access to a television channel. Ex. 1001, 9:25–32 ("[w]hen a tile is selected, whether by mouse click or otherwise, the tile instantly provides the user with access to the underlying information, whether that data be . . . or a television signal."). Duhault II similarly discloses that "if a user desired to watch the video image 146 of FIG. 1 in full-motion-video the user would

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select the video image 146 by pointing a cursor at the image and clicking," and that "the second tuner is used to implement the full-motion-video of the selected video image." Ex. 1014, 4:1–14 (emphasis removed); *see id.* at Figs. 5, 6, 3:56–67. SurfCast argues that "the information from the underlying information source was already being displayed before the image was even selected," and that "only the rate at which the video image receives information from the tuner is updated." PO Resp. 37. However, Duhault II discloses that, prior to selection, the video image is available at only less than full-motion video rate; only when the video image is selected does Duhault II provide access to the video image at full-motion-video rate. Ex. 1014, Figs. 5, 6, 3:9–4:24.

Finally, SurfCast contends that Duhault II's video images are not "tiles" as construed by SurfCast. We decline to adopt SurfCast's proposed construction of "tile" for the reasons discussed above. We, therefore, need not reach these arguments.

In view of the foregoing, we conclude that Microsoft has demonstrated sufficiently that Duhault II describes the "tile" claim feature.

A [first/second] priority value (claims 4, 31)

Claim 4 recites "assigning said first refresh rate and said second refresh rate in accordance with a first priority value of a first information source associated with said first tile and a second priority value of a second information source associated with said second tile." Claim 31 similarly recites "assign[ing] said first retrieval rate and said second retrieval rate in accordance with a predetermined priority scheme."

Microsoft asserts that Duhault II's video images are assigned a higher or lower refresh rate depending on whether a user has prioritized that image by

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selecting it. 292 Pet. 26 (citing Ex. 1003 ¶ 690); 293 Pet. 28 (citing Ex. 1003 ¶ 725). SurfCast contends that Duhault II does not disclose priority values being assigned to video images because "[a] priority value and a refresh rate are different from one another." PO Resp. 39. Microsoft counters that SurfCast cites no evidence and that its expert does not contest Dr. Karger's analysis of those claims. Pet. Reply 11. Even assuming that "a priority value may be used to distinguish between two tiles that, because of their contents, might be automatically assigned the same refresh rates," as SurfCast contends (PO Resp. 39), we are persuaded sufficiently that Duhault II discloses a priority value. Microsoft identifies the selection of a video image by a user as an assignment of a first (higher) priority value and the grouping of non-selected video images as an assignment of a second (lower) priority value. *See, e.g.,* 292 Pet. 26 (citing Ex. 1003 ¶ 690). Thus, the selection of the video image "[is] used to distinguish between two [video images] that, because of their contents, might otherwise be automatically assigned the same refresh rates."

Upon consideration of the parties' contentions and evidence, we determine that Microsoft has demonstrated by a preponderance of evidence that Duhault II describes priority values, as recited in claims 4 and 31.

Assigning refresh rates uniformly (claims 10, 42, 49)

Claim 10 recites "wherein said attribute [that is assigned uniformly] is a refresh rate." Claims 42 and 49 recite commensurate limitations.

Microsoft asserts that Duhaut II discloses that multiple unselected video viewing areas are assigned the same refresh rate using the same methodology. 292 Pet. 26 (citing Ex. 1003 ¶ 696); 293 Pet. 28 (citing Ex. 1003 ¶ 734); 294 Pet. 21 (citing Ex. 1003 ¶ 748). SurfCast contends that

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Duhault II does not disclose assigning refresh rates uniformly to all of the video images because "the refresh rate is defined by the tuner associated with the images." PO Resp. 39. Microsoft counters that SurfCast cites no credible evidence and that its expert does not contest Dr. Karger's analysis of those claims. Pet. Reply 11. Microsoft relies upon Duhault II's disclosure that each of eight video images may be updated by a single tuner. *See, e.g.,* 292 Pet. 26 (citing Ex. 1003 ¶ 696). Dr. Karger's testimony that "[a] person of ordinary skill in the art would understand that the refresh rate of eight tiles can be uniform because they are updated by the same tuner," is unrebutted. Ex. 1003 ¶ 696.

Upon consideration of the parties' contentions and evidence, we determine that Microsoft has demonstrated by a preponderance of evidence that Duhault II describes assigning refresh rates uniformly, as recited in claims 10, 42, and 49.

Conclusion

For the foregoing reasons, we determine that Microsoft has demonstrated by a preponderance of the evidence that claims 1–13, 17–28, 30–33, 35–37, 39–43, and 46–50 are unpatentable under 35 U.S.C. § 102(e) as anticipated by Duhault II.

D. Anticipation by Chen

Microsoft alleges that claims 1, 9–11, 22, 41–43, 46, and 48–50 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Chen. 292 Pet. 27–33; 293 Pet. 29–34; 294 Pet. 21–26.

SurfCast counters that Chen does not disclose (1) the elements arranged as in the claim; and (2) "tiles." PO Resp. 40–46.

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Upon consideration of the parties' contentions and supporting evidence, we determine that Microsoft has demonstrated by a preponderance of evidence that claims 1, 9–11, 22, 41–43, 46, and 48–50 are anticipated by Chen. In our discussion below, we address SurfCast's arguments presented in the Patent Owner Response, focusing on the disputed claim limitations.

Chen

Chen describes a performance monitoring tool for a data processing system. Ex. 1015, 2:61. The performance monitoring tool may be used for monitoring, capturing, saving, retrieving, and analyzing data processing system operations. *Id.* at 2:63–65. The performance monitoring tool is built on a client/server model in which a server program, known as a "Data Supplier," runs as a daemon on a server system and one or more client programs, known as "Data Consumers," provides the monitoring facilities. *Id.* at 4:3–10. The basic monitoring device is called a monitor. *Id.* at 5:11. Within a monitor, "one or more sets of data processing system statistics may be observed in subwindows called instruments." *Id.* at 5:14–17. An instrument can monitor a set of statistics supplied from any host on the network that runs the Data Supplier daemon. *Id.* at 5:17–19.

Figure 12d is reproduced below depicting Chen's monitor having a plurality of instruments:

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FIG. 12d
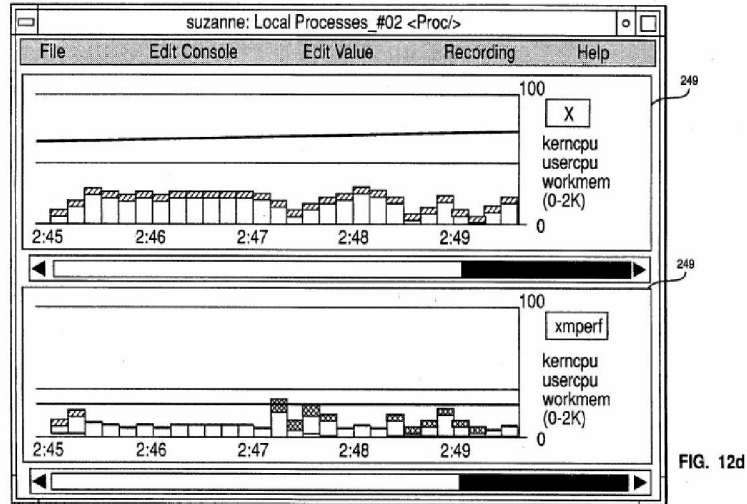
As shown in Figure 12d of Chen, an instrument shows statistics for a system resource over a period of time, as shown at 249. *Id.* at 23:35–37. GUI (graphical user interface) 80 allows the user to start and stop recording from any active monitoring instrument. *Id.* at 6:63–65, 13:15–21. The user can add new instrument subwindows to the console and has control over the sampling frequency of the instrument. *Id.* at 8:29–31, 8:38–40. Each instrument has an "interval" property that determines the number of milliseconds between observations. *Id.* at 23:45–48, 24:3–5.

<u>*Reliance on Chen's preferred embodiment*</u>

SurfCast asserts that Chen does not disclose the elements arranged as in the claim because the disclosures we relied upon must be pieced together from disparate parts of the reference, but does not elaborate. PO Resp. 40 (citing *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008)). Microsoft counters that SurfCast offers no evidence to support its assertion and that the portions of Chen addressed by Dr. Karger are all from Chen's preferred embodiment. Pet. Reply 11 (citing Ex. 1110 at ¶¶ 91–93). We agree with Microsoft. The parts of Chen relied upon by the Microsoft

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are not "disparate parts of the reference," but rather subsystems of a single embodiment.

Tiles

Independent claims 1, 22, and 46 recite "tiles." In its Petitions, Microsoft asserts that Chen's instruments disclose the "tile" claim feature. 292 Pet. 29–30 (citing Ex. 1003 ¶¶ 757–759); 293 Pet. 31 (citing Ex. 1003 ¶¶ 808–811); 294 Pet. 23 (citing Ex. 1003 ¶¶ 850–851). SurfCast contends that Chen's instruments are not the recited "tiles" because they are not graphical user interface elements "that, when selected, provide[] access to an information source," as required by the Board's construction. PO Resp. 42–46. Specifically, SurfCast argues that "[s]electing any one of the[] submenu items [in an Instrument Menu] . . . will not *provide access* to an information source or the underlying information of the instrument's information source." PO Resp. 45. Microsoft counters that the Board's findings in the Decision to Institute were based on selecting instruments, not submenu controls, and that selecting an instrument "provides access to an information source" because selecting that instrument makes available a submenu control to initiate recording and makes available Chen's marking functionality. Pet. Reply 12 (citing Ex. 1110 ¶ 98). Microsoft is correct. When we addressed this argument by SurfCast in our Decision to Institute, we determined that "Chen discloses that individual instruments may be selected or unselected" and that "the options available in an instrument's Instrument Menu depend, in part, upon whether that instrument is selected." Dec. 28. An example of the "access" provided by selecting an instrument is the ability to control the information source by, e.g., selecting "Begin Recording" from that

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instrument's Instrument Menu. Ex. 1015, Fig. 11, 14:67–15:2. The user has no such ability when the instrument is not selected. *Id.* at Fig. 11 ("N/A"). SurfCast contends that the claim limitation "provides access to an information source" requires access to the information in the recording file, but we do not interpret "provides access" so narrowly. SurfCast has not adequately explained why the ability to control an information source is not "provid[ing] access" to that information source.

SurfCast also contends that Chen's instruments are not "tiles" as construed by SurfCast. PO Resp. 42. We decline to adopt SurfCast's proposed construction of "tile" for the reasons discussed above. We, therefore, need not reach these arguments.

In view of the foregoing, we conclude that Microsoft has demonstrated sufficiently that Chen describes the "tile" claim feature.

Conclusion

For the foregoing reasons, we determine that Microsoft has demonstrated by a preponderance of the evidence that claims 1, 9–11, 22, 41–43, 46, and 48–50 are unpatentable under 35 U.S.C. § 102(e) as anticipated by Chen.

E. Obviousness over Chen and MSIE Kit

Microsoft alleges that claim 29 is unpatentable under 35 U.S.C. § 103(a) as obvious over Chen and MSIE Kit. 293 Pet. 35–36.

SurfCast counters that (1) claim 29 depends from claim 22, which is not anticipated by Chen; and (2) there is no clear rationale for combining Chen and MSIE Kit. PO Resp. 46–47.

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Upon consideration of the parties' contentions and supporting evidence, we determine that Microsoft has demonstrated by a preponderance of evidence that claim 29 is obvious over Chen and MSIE Kit. In our analysis below, we address SurfCast's argument presented in the Patent Owner Response.

MSIE Kit

MSIE Kit describes features of Microsoft Windows Internet Explorer 4, including Microsoft Active Desktop functionality in conjunction with Windows 98 or Windows NT. Ex. 1007, 174, 180, 183, 211. MSIE Kit describes Active Desktop "items" presented on a user's desktop. *Id.* Each item is associated with an information source on the Web. *Id.* at 174, 176, 177, 180, 183. Each item is presented typically on the desktop in a borderless frame without a title bar or scrollbars. *Id.* at 176, 183. By default, the items are laid out in a 3x2 grid. *Id.* at 176–177, 180, 183. Each item displays information from a URL and is updated periodically. *Id.* at 176–177, 180, 188, 201. The user may choose how frequently to update, or a content provider may specify the frequency in a "CDF" file. *Id.* at 177, 183, 188, 223. Users may select an item in order to move it on the desktop or may select a link within the item to open that link in a new browser window. *Id.* at 177, 183.

Claim 22

As discussed above, Microsoft has established by a preponderance of the evidence that Chen anticipates the subject matter of claim 22. Thus, we are not persuaded that claim 29 is patentable merely by virtue of its dependence from claim 22.

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Rationale for combining

Microsoft contends that it would have been obvious to combine Chen and MSIE Kit because they are analogous art in related fields. 293 Pet. 35–36 (citing Ex. 1003 ¶¶ 824). SurfCast contends that "there is no clear rationale for combining Chen and MSIE Kit" because, *inter alia*, "[t]he systems are very different art and are used for very different purposes," and "[o]ne of skill in the art would not be motivated to use Active Desktop items in a high-performance monitoring system disclosed by Chen." PO Resp. 46–47 (citing Ex. 2004 ¶¶ 108, 109, 111). Microsoft counters that the combination upon which the Board instituted review relies upon the combination of MSIE Kit's password scheme, not its Active Desktop Items, with the instruments of Chen, and SurfCast presents no credible evidence challenging that combination. Pet. Reply 12–13.

In its Petition, Microsoft relied upon Dr. Karger's testimony that "a person of ordinary skill would have considered [the limitation of claim 29] to be an obvious design choice or a routine modification to an existing system" and that "one skilled in the art would have found it obvious to combine Chen with MSIE Kit because they are analogous art in related fields." 293 Pet. 35–36 (citing Ex. 1003 ¶¶ 822–825). Mr. Weadock disagrees with Dr. Karger's testimony on the basis that "Dr. Karger does not explain . . . what functionality Active Desktop would bring to Chen," that "[t]he core abilities of Web browsers . . . would have had no usefulness in the invention of Chen," and that both the "target user communities" and the "technical requirements" for Chen and MSIE Kit are very different. Ex. 2004 ¶¶ 108, 109, 111. Dr. Karger, in turn, testifies that (1) Mr.

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Weadock's arguments are irrelevant to the proposed combination of MSIE Kit's *password scheme* with Chen; (2) both references address a need for data security in presenting regularly updated information from a variety of information sources; (3) a person of ordinary skill in the art could easily take the password functionality of Active Desktop and add it to the instruments of Chen; and (4) doing so was well within the average level of skill in the art in 1999 because passwords had been used with computer interfaces for decades, and one of ordinary skill in the art would have understood that their use with Chen would have improved the security of Chen. Ex. 1110 ¶¶ 107–113.

On this record, there is sufficient evidence to support a finding that the claims merely combine known elements for their known purpose to achieve a predictable result. *KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

Conclusion

For the foregoing reasons, we determine that Microsoft has established by a preponderance of the evidence that claim 29 is unpatentable under 35 U.S.C. § 103(a) as obvious over Chen and MSIE Kit.

F. Anticipation by MSIE Kit

Microsoft alleges that claims 1–3, 5–8, 11, 12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37–40, 43–47, and 50–52 are unpatentable under 35 U.S.C. § 102(b) and § 102(a) as anticipated by MSIE Kit. 295 Pet. 20–34.

SurfCast counters that MSIE Kit does not disclose all of the claim limitations recited in independent claims 1, 22, and 46, or in dependent claims 3 and 30. PO Resp. 47–54.

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Upon consideration of the parties' contentions and supporting evidence, we determine that Microsoft has demonstrated by a preponderance of evidence that claims 1–3, 5–8, 11, 12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37–40, 43–47, and 50–52 are anticipated by MSIE Kit. In our discussion below, we address SurfCast's arguments presented in the Patent Owner Response, focusing on the disputed claim limitations.

Tiles

Independent claims 1, 22, and 46 recite "tiles." In its Petition, Microsoft asserts that MSIE Kit's Active Desktop items disclose the "tile" claim feature. 295 Pet. 22, 24, 27 (citing Ex. 1003 ¶¶ 268, 356–363, 401–404). SurfCast contends that MSIE Kit's Active Desktop items are not "tiles" because they do not, "when selected, provide[] access to an information source," as required by the Board's construction. PO Resp. 47–51. Specifically, SurfCast contends that a user cannot select an Active Desktop item itself, but can select only a link or hot spot inside the Active Desktop item. *Id.* at 48. Microsoft counters that (1) clicking on a link within an Active Desktop items selects both the item and the link; and (2) SurfCast ignores the hot spot functionality of Active Desktop items, which permits a user to select an item by clicking any portion of the item and be provided access to an assigned information source; (3) moving an item to an un-obscured location or resizing an item "provides access" to the information source depicted in that item; and (4) once an Active Desktop item is selected, "access" is provided to the information source because the user may move through hyperlinks in that information source and select one by pressing the "enter" key. Pet. Reply 14–15.

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We are not persuaded by SurfCast's argument that an Active Desktop item cannot be selected. SurfCast concedes that the links and hot spots are *included* in the Active Desktop item. *See, e.g.*, PO Resp. 48. If a user selects a link *included* in an Active Desktop item, the user necessarily selects the Active Desktop item. SurfCast argues that an Active Desktop item displaying a web page with no links or a link-free portion of a web page provides no mechanism to access any information. PO Resp. 49–50. Even assuming that were true, it would still not account for the "hot spot" functionality disclosed by MSIE Kit. As Microsoft points out, a "hot spot" can be defined to encompass the entire Active Desktop item such that clicking any portion of the item (regardless of what is displayed in that item) provides access to an assigned information source. Pet. Reply 15 (citing Ex. 1007, 213–14; Ex. 1110 ¶¶ 131–33).

SurfCast also contends that MSIE Kit's Active Desktop items are not "tiles" as construed by SurfCast. PO Resp. 47. We decline to adopt SurfCast's proposed construction of "tile" for the reasons discussed above. We, therefore, need not reach these arguments.

In view of the foregoing, we conclude that Microsoft has demonstrated sufficiently that MSIE Kit describes the "tile" claim feature.

Partitioning

SurfCast also contends that MSIE Kit does not disclose "partitioning a visual display of the device into an array of tiles" as construed by SurfCast. PO Resp. 51–52. We decline to adopt SurfCast's proposed construction of "partitioning a visual display of the device into an array of tiles" for the reasons discussed above. We, therefore, need not reach these arguments.

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In view of the foregoing, we conclude that Microsoft has demonstrated sufficiently that MSIE Kit describes the "partitioning" claim feature.

Uniform size and shape (claims 3 and 30)

Claim 3 recites "partitioning said array of tiles in a non-overlapping configuration wherein each tile of said array of tiles is a uniform size and shape." Claim 30 recites a limitation with commensurate scope.

Microsoft contends that MSIE Kit discloses how Active Desktop partitions a desktop into a 3 x 2 grid, which yields cells of an identical size arranged in a non-overlapping layout. 295 Pet. 29–30 (citing Ex. 1003 ¶¶ 289–294, 380). SurfCast contends that MSIE Kit does not disclose "partitioning said array of tiles . . . wherein each tile of said array of tiles is a uniform size and shape" because (1) "200 X 200 pixels" is a suggested maximum, not a default; (2) MSIE Kit elsewhere discloses items with a size of 200 X 80 pixels; and (3) Dr. Karger could not tell whether the two-by-two grid on page xxx of MSIE Kit depicts a single Active Desktop item or multiple items. PO Resp. 52–54. Microsoft counters that (1) "Active Desktop Items will be displayed by default in a non-overlapping 3 X 2 grid;" and (2) a default size is implied by MSIE Kit's disclosure that a new Active Desktop item can be created without specifying its size. Pet. Reply 16 (citing Ex. 1110 ¶¶ 143–45).

As discussed above, we construe "partitioning a visual display of the device into array of tiles" as "dividing a display or window into two or more tiles." We, therefore, interpret the additional limitation recited in claims 3 and 30 as requiring that the outcome of the "partitioning" is tiles with a uniform size and shape. MSIE Kit discloses that, "[b]y default, Internet

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Explorer lays out new Active Desktop items on a 3 by 2 grid," and that
"[f]or a desktop at a resolution of 640 x 480, . . . this would translate into a
maximum size of no more than 200 × 200 pixels." Ex. 1007, 183. Thus, at
least at the time that Internet Explorer lays out new Active Desktop Items,
those items have "a uniform size and shape." Subsequent to that layout, a
user may re-size one or more items such that each item no longer has a
uniform size and shape, as SurfCast contends. The language of claims 3 and
31, however, does not require that each of the tiles in the array *remain* a
uniform size and shape *after* partitioning. In that regard, we note that the
'403 patent discloses that tiles may change in size and shape in response to
user input. *See, e.g.*, Ex. 1001, 9:43–56.

Upon consideration of the parties' contentions and evidence, we
determine that Microsoft has demonstrated by a preponderance of evidence
that MSIE Kit describes the disputed claim feature.

Conclusion

For the foregoing reasons, we determine that Microsoft has
established by a preponderance of the evidence that claims 1–3, 5–8, 11, 12,
14–16, 19, 21, 22, 27, 30, 32, 34, 37–40, 43–47, and 50–52 are unpatentable
under 35 U.S.C. § 102(b) as anticipated by MSIE Kit.

G. Anticipation by Duperrouzel

Microsoft alleges that claims 1–3, 5–8, 12–14, 19, 21, 22, 27, 30, 32,
34, 37–40, 46, and 47 are unpatentable under 35 U.S.C. § 102(e) as
anticipated by Duperrouzel. 295 Pet. 41–54.

SurfCast counters that Duperrouzel does not disclose all of the claim
limitations recited in independent claims 1, 22, and 46. PO Resp. 54–60.

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Upon consideration of the parties' contentions and supporting evidence, we determine that Microsoft has demonstrated by a preponderance of evidence that claims 1–3, 5–8, 12–14, 19, 21, 22, 27, 30, 32, 34, 37–40, 46, and 47 are anticipated by Duperrouzel. In our discussion below, we address SurfCast's arguments presented in the Patent Owner Response, focusing on the disputed claim limitation.

Duperrouzel

Duperrouzel describes a display system that simultaneously displays multiple web pages in a plurality of non-overlapping "display panes." Ex. 1011, Abstract, 2:4–11, 5:1–2, Fig. 2. In one embodiment, the display system is a web browser. *Id.* at Abstract. A user may designate the number of non-overlapping display areas to be displayed. *Id.* Each display pane can be controlled individually to refresh the web page currently displayed at a rate specified by the user. *Id.* at 13:36–42, Fig. 19. Duperrouzel discloses that, in one embodiment, "the web page display is executed in a windows environment such as Microsoft Active Desktop in conjunction with the Internet Explorer engine." *Id.* at 11:38–65.

Tiles

Independent claims 1, 22, and 46 recite "tiles." In its Petition, Microsoft asserts that Duperrouzel's display panes disclose the "tile" claim feature. 295 Pet. 42–43, 45, 47 (citing Ex. 1003 ¶¶ 438, 540, 575–576). SurfCast contends that Duperrouzel's display areas are not the recited "tiles" because they do not, "when selected, provide[] access to an information source," as required by the Board's construction. PO Resp. 55–57. Specifically, SurfCast contends that "each pane is a window that contains an

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application and is always active and accessible to the user," and that a user has no additional access to a display pane when it is selected because "they are fully functional web-browser applications displaying active web-pages that can be accessed directly by the user." *Id.* SurfCast further contends that "maximizing a display pane does not perform the function of providing access to any information because that access was already present and is unaltered by increasing the size of the pane." *Id.* at 57. Microsoft counters that (1) SurfCast's argument is unsupported by expert testimony; (2) Duperrouzel discloses, in addition to maximizing, the ability to save, print, or refresh the web page displayed in a pane when that pane is selected; and (3) both maximizing and refreshing are described by the '403 patent as examples of providing access. Pet. Reply 17 (citing Ex. 1011, Figs. 8, 9, 9:27–53).

We are not persuaded that Duperrouzel's display panes do not "when selected, provide[] access to an information source." Each of the display panes (i.e., "tiles") in Duperrouzel displays at least a portion of a web page (i.e., "information source"). Each pane has a scroll control 242 that controls the position of the web page being displayed within the display pane. Ex. 1011, 6:41–43 ("A scroll control 242 of the display pane 212*a* controls the position of the web page being displayed in the display pane 212*a*."). Duperrouzel also discloses that "the controls for each display pane 212 affect only that display pane." *Id.* at 6:47–49 (emphasis removed). SurfCast acknowledges that the scroll bars provide access to the web page. Tr. 66 ("That's not more access because you already have that access by using the slide bars."). Because the scroll bars of a display pane affect only that

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display pane, however, a user cannot scroll that display pane unless it is selected. Thus, a display pane, when selected, provides access to (i.e., the ability to scroll to see more of) the information source (i.e., web page).

SurfCast also contends that Duperrouzel's display panes are not "tiles" as construed by SurfCast. PO Resp. 57–60. We decline to adopt SurfCast's proposed construction of "tile" for the reasons discussed above. We, therefore, need not reach these arguments.

In view of the foregoing, we conclude that Microsoft has demonstrated sufficiently that MSIE Kit describes the "tile" claim feature.

Conclusion

For the foregoing reasons, we determine that Microsoft has established by a preponderance of the evidence that claims 1–3, 5–8, 12–14, 19, 21, 22, 27, 30, 32, 34, 37–40, 46, and 47 are unpatentable as anticipated by Duperrouzel.

H. Obviousness over either MSIE Kit and Brown or Duperrouzel and Brown

Microsoft alleges that claims 17, 20, 25, and 28 are unpatentable under 35 U.S.C. § 103(a) as obvious over either (1) MSIE Kit and Brown, or (2) Duperrouzel and Brown. 295 Pet. 37–38, 57–58, 60.

SurfCast counters that Brown does not teach "tiles" and therefore does not cure the alleged deficiency in MSIE Kit and Duperrouzel. PO Resp. 60. For the reasons discussed above, however, we are not persuaded that MSIE Kit and Duperrouzel are deficient.

Upon consideration of the parties' contentions and supporting evidence, we determine that Microsoft has demonstrated by a preponderance

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of evidence that claims 17, 20, 25, and 28 are obvious over MSIE Kit and

Brown, and over Duperrouzel and Brown.

I.   *SurfCast's Corrected Motion to Amend Claims*

SurfCast moves to substitute claims 53–59 for challenged claims 46–

52, respectively, if we find original claim 46 unpatentable. Mot. Amend 1.

As stated above, we determine that Microsoft has demonstrated by a

preponderance of the evidence that all of the challenged claims are

unpatentable, including claim 46. Therefore, SurfCast's Motion to Amend is

before us for consideration. For the reasons set forth below, SurfCast's

Motion to Amend is *denied*.

Proposed substitute claim 53 is an independent claim and proposed

substitute claims 54–59 depend from proposed substitute claim 53.

Proposed substitute claim 53 is reproduced as follows:

> 53 (substitute for claim 46): A system for facilitating the
> organization and management of multiple data sources,
> comprising:

> a device that includes a processor configured to execute
> instructions, a memory connected to said processor to
> store at least one program that includes a graphical user
> interface, and an input device, wherein said processor
> executes instructions to:

> control simultaneous communication with a plurality of
> information sources;

> arrange a display into a grid an array of tiles that are not
> permitted to overlap, said grid of tiles being persistent
> from session to session;

> associate a first information source of said plurality of
> information sources to a first tile of said grid array of
> tiles and a second information source of said plurality of

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> information sources to a second tile of said grid ~~array~~ of
> tiles;
>
> retrieve information from said first information source in
> accordance with a first retrieval rate and retrieve
> information from said second information source in
> accordance with a second retrieval rate; and
>
> present information to said first tile in accordance with said first
> retrieval rate and present information to said second tile
> in accordance with said second retrieval rate;
>
> wherein the tiles are selectable, and wherein selecting a tile
> calls an assigned application program to provide access
> to information, the assigned application program being
> different from a program that arranges the display into
> the grid of tiles that are not permitted to overlap;
>
> wherein the assigned application program for the first tile and
> the assigned application program for the second tile are
> different application programs selected from among the
> group consisting of a web browser, a word processing
> application, an electronic mail application, a chat
> application, and a streaming video player.

Mot. Amend. 2–3 (emphasis added by SurfCast to show the changes).

A motion to amend claims in an *inter partes* review is not, itself, an amendment. As the moving party, SurfCast bears the burden of proof to establish that it is entitled to the relief requested. 37 C.F.R. § 42.20(c). Therefore, SurfCast's proposed substitute claims are not entered automatically, but only upon SurfCast's having demonstrated by a preponderance of the evidence the patentability of those substitute claims. *See, e.g.,* 37 C.F.R. § 42.1(d) (noting that the "default evidentiary standard [in proceedings before the Board] is a preponderance of the evidence.").

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1. Claim Construction

Claim construction is an important step in a patentability determination. *Oakley, Inc. v. Sunglass Hut Int'l*, 316 F.3d 1331, 1339 (Fed. Cir. 2003); *Medichem, S.A. v. Rolabo, S.L.*, 353 F.3d 928, 933 (Fed. Cir. 2003) ("Both anticipation under § 102 and obviousness under § 103 are two-step inquiries. The first step in both analyses is a proper construction of the claims . . . . The second step in the analyses requires a comparison of the properly construed claim to the prior art." (Internal citations omitted)). A motion to amend claims must identify how the proposed substitute claims are to be construed, especially when the proposed substitute claims introduce new claim terms. *See Idle Free Sys., Inc. v. Bergstrom, Inc.*, IPR2012-00027, slip op. at 7 (PTAB June 11, 2013) (Paper 26) ("*Idle Free*").

In its Motion to Amend, SurfCast asserts that the claim term "persistent" means "at least the tile's position in a grid or array, the tile's refresh rate, and a source of information associated with the tile are maintained from session to session." Mot. Amend 5 (citing Ex. 2063 ¶ 33e). SurfCast's proposed construction improperly imports limitations—"the tile's position in a grid or array, the tile's refresh rate, and a source of information associated with the tile"—from the Specification into the claims. The proposed substitute claim requires only that "said tiles be[] persistent from session to session." This is consistent with the '403 patent's use of "persistent" to mean "not saved explicitly but [] preserved from session to session." Ex. 1001, 15:63–64. In contrast, the disclosure relied upon by Mr. Weadock (Ex. 2063 ¶ 33e (citing Ex. 1001, 13:8–11)) does not use the word "persistent" and describes merely "one embodiment of grid object 700."

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Ex. 1001, 12:31 (emphasis removed). Moreover, SurfCast's proposed construction of "persistent" includes the phrase "session to session," which would render the same language in proposed substitute claim 53 superfluous. *See Bicon*, 441 F.3d at 950 ("[C]laims are interpreted with an eye toward giving effect to all terms in the claim."); *see also Stumbo v. Eastman Outdoors, Inc.*, 508 F.3d 1358, 1362 (Fed. Cir. 2007) (disapproving of claim constructions that render phrases in claims superfluous). As such, we decline to adopt SurfCast's proposed construction of "persistent."

SurfCast introduces several other new claim terms—e.g., "session," "calls," "application program,"—in its proposed substitute claims. SurfCast argues that those claim features distinguish the proposed substitute claims from the prior art. *See, e.g.*, Mot. Amend 8–13. Yet, SurfCast does not provide any persuasive claim constructions or explanations for how the new claim terms should be construed.

Without a reasonable construction of the new claim features added by the proposed substitute claims, SurfCast's motion does not provide adequate information for us to determine whether SurfCast has demonstrated the patentability of its proposed substitute claims over the prior art generally. Therefore, we are not persuaded that SurfCast has met its burden to demonstrate patentability of the proposed substitute claims under 37 C.F.R. § 42.20(c).

  2. *Written Description Support*

A motion to amend claims must identify clearly the written description support for each proposed substitute claim. 37 C.F.R. § 42.121(b). The requirement that the motion to amend must set forth the

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support in the original disclosure of the patent is with respect to *each claim*, not for a particular feature of a proposed substitute claim. In other words, it is inadequate to show written description support for just the claim feature added by the proposed substitute claim. The motion must account for the claimed subject matter as a whole, i.e., the *entire* proposed substitute claim, when showing where there is sufficient written description support for each claim feature. *Nichia Corp. v. Emcore Corp.*, IPR2012-00005, slip op. at 4 (PTAB June 3, 2013) (Paper 27).

In its Motion to Amend, SurfCast does not set forth adequate written description support for all of the claim features. Rather, SurfCast merely addresses the new claim features added by the proposed substitute claims. Mot. Amend 4–7. As a result, SurfCast's Motion to Amend fails to set forth the written description support for each proposed substitute claim as required by 37 C.F.R. § 42.121(b)(1) and § 42.121(b)(2).

3. *Patentability over Prior Art*

The patent owner bears the burden of proof in demonstrating patentability of the proposed substitute claims over the prior art in general, and, thus, entitlement to add these claims to its patent. *Idle Free*, slip op. at 7. In a motion to amend, the patent owner must show that the conditions for novelty and non-obviousness are met for the prior art available to one of ordinary skill in the art at the time of the invention. With regard to obviousness as the basis of potential unpatentability of the proposed substitute claims, the patent owner should present and discuss facts which are pertinent to the first three underlying factual inquiries of *Graham*: (1) the scope and content of the prior art, (2) differences between the claimed

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subject matter and the prior art, and (3) the level of ordinary skill in the art, *with special focus on the new claim features* added by the proposed substitute claims. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The patent owner should identify each new claim feature, and come forward with technical facts and reasoning about that particular feature. Some discussion and analysis should be made about the specific technical disclosure of the closest prior art as to each particular feature, and the level of ordinary skill in the art, in terms of ordinary creativity and the basic skill set of a person of ordinary skill in the art, regarding the feature.

Here, we are unpersuaded that SurfCast has demonstrated by a preponderance of the evidence that the proposed substitute claims are patentable. In its Motion to Amend, SurfCast does not address, in any meaningful way, what was previously known in the art, much less the level of ordinary skill in the art, regarding each new claim feature added by its proposed substitute claims. Notably, proposed substitute claim 53 adds the following features:

(1)   tiles are *not permitted to overlap,*

(2)   tiles are *persistent* from session to session,

(3)   wherein the tiles are selectable by a user, and wherein *selecting a tile calls an assigned application program* to provide access to information, the assigned application program being different from a program that arranges the display into the grid of tiles that are not permitted to overlap;

(4)   wherein the assigned application program for the first tile and the assigned application program for the second tile are *different application programs* selected from among the group consisting of a web browser, a word processing

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application, an electronic mail application, a chat application, and a streaming video player.

Not permitted to overlap

In its Motion to Amend, SurfCast argues that MSIE Kit, Brown, Nawaz, and Utility Window Manager for X Windows do not disclose the "not permitted to overlap" feature. However, there is no persuasive explanation in the Motion to Amend as to why Duhault II, Duperrouzel, and Chen do not disclose the "not permitted to overlap" feature. Mot. Amend 8–13. One of ordinary skill in the art would have recognized that at least Duhault II, Duperrouzel, and Chen describe or suggest that new claim feature. See, e.g., Ex. 1014, Fig. 1, 2:27–31; Ex. 1011, Abstract, 2:4–11, 5:1–2, Fig. 2; Ex. 1015, Fig. 12d, 32:1–3, 32:12–15.

Persistent

In its Motion to Amend, SurfCast argues that Duperrouzel, Duhault II, Brown, Nawaz, and Hassett do not disclose the "persistent from session to session" feature. However, there is no persuasive explanation in the Motion to Amend as to why MSIE Kit does not disclose the "persistent from session to session" feature. Mot. Amend 8–13. SurfCast also does not address its own admitted prior art—icons (Ex. 1001, 3:25–51)—regarding the claims "persistent from session to session" feature. One of ordinary skill in the art would have recognized that at least icons and MSIE Kit describe or suggest that new claim feature. See, e.g., Ex. 1007, 50–60, 175.

Selecting a tile calls an assigned application program

In its Motion to Amend, SurfCast argues that none of the prior art it analyzed discloses the "selecting a tile calls an assigned application program" feature. Mot. Amend 8–13. With respect to MSIE Kit, for

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example, Mr. Weadock testifies that MSIE Kit does not disclose this feature because an Active Desktop Item cannot be selected; only a link within an Active Desktop Item can be selected. Ex. 2063 ¶¶ 92–93. We rejected that argument, however, for the reasons discussed above in our analysis of the patentability of the original claims. One of ordinary skill in the art would have recognized that at least MSIE Kit describes or suggests that new claim feature. *See, e.g.,* Ex. 1007, 213–214.

> *Different Application Programs*

In its Motion to Amend, SurfCast argues that none of the prior art it analyzed discloses the "selecting a tile calls an assigned application program" feature. Mot. Amend 8–13. With respect to MSIE Kit, for example, Mr. Weadock that selecting a link within an Active Desktop Item "does not call a different program from MSIE, but merely opens another instance of MSIE." Ex. 2063 ¶ 94. We are not persuaded by SurfCast's argument. MSIE Kit discloses subkeys in the Windows registry that associate programs other than Internet Explorer with certain types of URLs. Ex. 1007, 127–28. For example, Outlook Express can be associated with "mailto:" URLs. *Id.* Other programs can be associated with "news:" and "snews:" URLs. *Id.* Accordingly, one of ordinary skill in the art would have recognized that at least MSIE Kit describes or suggests that new claim feature.

4. Conclusion

For the foregoing reasons, SurfCast has not, in its Motion to Amend, set forth a prima facie case for the relief requested or satisfied its burden of proof. Consequently, the current situation does not require us to consider

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Microsoft's Opposition and SurfCast's Reply. SurfCast's Motion to Amend
is *denied*.

J. *Microsoft's Motion to Exclude*

Microsoft's Motion to Exclude seeks to exclude the following
categories of evidence:

(1) Paragraphs of Mr. Weadock's Declaration that address
SurfCast's proposed claim construction (Ex. 2004 ¶¶ 29, 44, 54,
92, 103, 104, 119, 120, 136, 137);

(2) Redacted exhibits cited to support SurfCast's conception and
reduction to practice arguments (Exhibits 2009, 2010, 2011,
2012, 2015, 2016, 2018, 2019, 2020, 2021, 2022, 2023, 2024,
2025, 2026, 2027, 2028, 2029, 2034, 2035, 2036, 2037, 2038,
2049, 2050, 2067, 2068), and Mr. Bone's testimony about the
same (Ex. 2073);

(3) The testimony of Dr. Bone (Exhibit 2073);

(4) Portions of Patent Owner's Reply (Paper 62) and a declaration of
Mr. Weadock (Ex. 2081) alleged to be outside the proper scope
of a reply; and

(5) Evidence alleged to be irrelevant (Ex. 2004 ¶ 85, 93, 101, 114;
Ex. 2051; Ex. 2052; Ex. 2063 ¶ 57; Ex. 2065; Ex. 2081 ¶ 11, 12,
15, 65, 68, 98–102; Ex. 2088).

Paper 67. SurfCast filed an Opposition to Microsoft's Motion to Exclude.

Paper 81. Microsoft filed a Reply to SurfCast's Opposition to its Motion to

Exclude. Paper 83. As movant, Microsoft has the burden of proof to

establish that it is entitled to the requested relief. *See* 37 C.F.R. § 42.20(c).

For the reasons stated below, Microsoft's Motion to Exclude is *granted-in-
part* and *denied-in-part*.

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1. *Weadock testimony regarding SurfCast claim construction*

Microsoft moves to exclude paragraphs 29, 44, 54, 92, 103, 104, 119, 120, 136, and 137 of Mr. Weadock's declaration (Ex. 2004) as irrelevant under FRE 401, lacking foundation (FRE 703), relying on facts not in evidence (FRE 702), containing improper legal conclusions, and mischaracterizing evidence (FRE 403). Paper 67, 1–3; Paper 83, 1. Specifically, Microsoft argues that these paragraphs rely on a claim construction that differs from and is inconsistent with the Board's claim construction. Paper 67, 1. However, as SurfCast points out, the Board's construction of a claim term in a Decision to Institute is not final, and is reviewable in light of both parties' subsequent briefings and oral argument. Paper 81, 1–3. Mr. Weadock's testimony properly relies on the Specification of the '403 patent and the knowledge of a person of ordinary skill in the art to support SurfCast's claim construction. Accordingly, the motion is *denied* as to paragraphs 29, 44, 54, 92, 103, 104, 119, 120, 136, and 137 of Mr. Weadock's declaration (Ex. 2004).

2. *Conception and reduction-to-practice exhibits*

Microsoft moves to exclude Exhibits 2009, 2010, 2011, 2012, 2015, 2016, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2034, 2035, 2036, 2037, 2038, 2049, 2050, 2067, and 2068, and Mr. Bone's testimony about the same (Ex. 2073) as irrelevant (FRE 401), lacking foundation (FRE 703), lacking authenticity (FRE 901), and violating the doctrine of completeness (FRE 106). Paper 67, 2–5; Paper 83, 1–2. Specifically, Microsoft argues that SurfCast precluded it from testing SurfCast's evidence by redacting portions of these exhibits and by asserting

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privilege during the deposition of Dr. Bone. *Id.* SurfCast later provided
unredacted versions of exhibits. Paper 81, 3–6; Papers 88, 91. SurfCast did
not, however, cure Microsoft's objection to the exhibits' authenticity. As
discussed above, the exhibits offered to corroborate the conception and
diligence testimony of Mr. Santoro, Mr. Lagermann, and Dr. Bone are
authenticated only by the testimony of Mr. Santoro (for conception exhibits)
or Dr. Bone (for diligence exhibits). The testimony of an interested party,
such as Mr. Santoro and Dr. Bone, is not sufficient to authenticate a
document offered for purposes of corroboration. The purpose of
corroboration is to prevent fraud by providing *independent* confirmation of
the interested party's testimony. *See, e.g., Kridl,* 105 F.3d at 1449. A
document authenticated by only an interested party does not achieve that
purpose because it is not sufficiently independent. Accordingly, the motion
is *granted* as to Exhibits 2009, 2010, 2011, 2012, 2015, 2016, 2018, 2019,
2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2034, 2035,
2036, 2037, 2038, 2049, 2050, 2067, and 2068.

   3. Dr. Bone's testimony

   Microsoft moves to exclude the testimony of Dr. Bone (Ex. 2073)
because it is the uncorroborated testimony of an interested party, and
because it is speculative. Paper 67, 5–6; Paper 83, 2–3. Microsoft does not,
however, identify a Federal Rule of Evidence under which the evidence is
inadmissible. It is within the Board's discretion to assign the appropriate
weight to be accorded to evidence. In its motion, Microsoft has not
explained adequately why the Board should exclude witness testimony on
diligence, instead of giving it little or no weight. *See, e.g., Donnelly*

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Garment Co. v. NLRB, 123 F.2d 215, 224 (8th Cir. 1942) ("One who is
capable of ruling accurately upon the admissibility of evidence is equally
capable of sifting it accurately after it has been received . . . ."). Moreover,
Microsoft may not challenge, in a motion to exclude, the sufficiency of the
evidence. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. at 48,767.
The Board is capable of taking into account the baselessness of a witness's
testimony, if any, when weighing all of the testimony of the witness.
Accordingly, the motion is *denied* as to Exhibit 2073.

　　4. SurfCast's Reply to Opposition to its Contingent Motion to Amend

　　Microsoft moves to exclude pages 2 to 5 of SurfCast's Reply to
Opposition to Motion for Conditional Amendment (Paper 62), paragraphs 7–
49, 55, 56, and 80–105 of Dr. Weadock's Reply Declaration (Ex. 2081), and
page 144, line 20 to page 145, line 3 of Dr. Weadock's deposition (Ex.
2089) as outside the scope of a proper reply. Specifically, Microsoft argues
that SurfCast provided new arguments and testimony about the proper
construction of terms in the proposed amendments, written description
support for the proposed amendments, and patentability of the proposed
substitute claims over the prior art. *Id.* SurfCast counters that its arguments
and evidence were responsive to the arguments made by Microsoft in its
Opposition. Paper 83, 7–11.

　　Having considered the parties' contentions and evidence, we are not
persuaded that SurfCast's Reply to Opposition to Motion for Conditional
Amendment, and the accompanying testimony of Mr. Weadock, should be
excluded. A motion to exclude is not a mechanism to argue that a reply
contains new arguments or relies on evidence necessary to make out a prima

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facie case. A motion to exclude, for instance, must state why the evidence is inadmissible (e.g., based on relevance or hearsay), identify the corresponding objection in the record, and explain the objection. *See* 37 C.F.R. § 42.64(c); Office Patent Trial Practice Guide, 77 Fed. Reg. at 48,767. Whether a reply contains arguments or evidence that are outside the scope of a proper reply under 37 C.F.R. § 42.23(b) is left to our determination. Therefore, Microsoft's argument that SurfCast's Reply contains new arguments and relies on new evidence is improper.

In any event, the mere fact that the Reply, and Mr. Weadock's accompanying testimony, includes evidence that was not discussed specifically in the Contingent Motion to Amend is insufficient to establish the impropriety of such evidence, much less inadmissibility under the Federal Rules of Evidence. The very nature of a reply is to respond to the opposition, which in this case is the Patent Owner Response. *See* 37 C.F.R. § 42.23(b). The need for relying on evidence not previously discussed in the Motion to Amend may not exist until a certain point has been raised in the opposition. Much depends on the specific arguments made in the opposition. As the movant, Microsoft has the burden of proof to establish that it is entitled to the requested relief. 37 C.F.R. § 42.20(c). Here, Microsoft's motion does not contain any meaningful discussion of the arguments that Microsoft made in its Opposition, which reasonably might or might not have triggered SurfCast's reliance on the arguments and evidence that Microsoft now seeks to exclude. Without such discussion, Microsoft has not shown that SurfCast's Reply and Mr. Weadock's testimony in support of that Reply exceeds the proper scope of reply evidence.

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For the foregoing reasons, the motion is *denied* as to SurfCast's Reply to Opposition to Motion for Conditional Amendment (Paper 62), paragraphs 7–49, 55, 56, and 80–105 of Dr. Weadock's Reply Declaration (Ex. 2081), and page 144, line 20 to page 145, line 3 of Dr. Weadock's deposition (Ex. 2089).

5. *Evidence alleged to be irrelevant*

Microsoft moves to exclude paragraphs 85, 93, 101, and 114 of Mr. Weadock's Declaration in support of SurfCast's Patent Owner Response (Ex. 2004), paragraph 57 of Mr. Weadock's Declaration in support of SurfCast's Contingent Motion to Amend (Ex. 2063), paragraphs 12, 15, 65, 68, and 98–102 of Mr. Weadock's Declaration in support of SurfCast's Reply to Opposition to its Motion to Amend (Ex. 2081), and Exhibit 2088 as irrelevant. Paper 67, 11–14. SurfCast counters that the evidence is relevant. Paper 83, 11–14. Again, Microsoft's motion does not contain any meaningful discussion of the arguments that Microsoft made in its Opposition, which reasonably might or might not have triggered SurfCast's reliance on the arguments and evidence that Microsoft now seeks to exclude. Without such discussion, Microsoft has not shown that SurfCast's Reply and Mr. Weadock's testimony in support of that Reply is irrelevant. Accordingly, Microsoft's motion is *denied* as to paragraphs 85, 93, 101, and 114 of Mr. Weadock's Declaration in support of SurfCast's Patent Owner Response (Ex. 2004), paragraph 57 of Mr. Weadock's Declaration in support of SurfCast's Contingent Motion to Amend (Ex. 2063), paragraphs 12, 15, 65, 68, and 98–102 of Mr. Weadock's Declaration in support of SurfCast's Reply to Opposition to its Motion to Amend (Ex. 2081), and Exhibit 2088.

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Microsoft also moves to exclude Exhibits 2051, 2052, and 2065 because they were created by SurfCast counsel and are hearsay, are irrelevant, lack foundation, and should be excluded for the same reasons as the underlying exhibits that they summarize. Paper 67, 14. SurfCast counters that the exhibits are not hearsay and do not lack foundation because they have been authenticated by Mr. Santoro and Dr. Bone. Paper 81, 14. Exhibits 2051, 2052, and 2065 summarize exhibits offered to support SurfCast's conception and diligence arguments. We granted Microsoft's motion to exclude the exhibits underlying these summaries for the reasons discussed above. For the same reasons, Microsoft's motion also is *granted* as to Exhibits 2051, 2052, and 2065.

6. *Whether Mr. Weadock is qualified as an expert*

Microsoft moves to exclude Mr. Weadock's testimony because it does not meet the standard for expert testimony (FRE 702). Paper 67, 15; Paper 83, 5. Specifically, Microsoft argues that Mr. Weadock's testimony is unreliable and inadmissible because he has not considered "the kinds of things an expert would consider when trying to determine whether asking a program to receive information from an input device is calling it." *Id.* SurfCast counters that Mr. Weadock's testimony is quoted out of context and relates to an irrelevant hypothetical. Paper 81, 15.

Having considered the parties' contentions and evidence, we are not persuaded that Mr. Weadock's testimony is not the result of "the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). The proposed substitute claim language recites "wherein selecting a tile *calls* an

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assigned application program to provide access to information" (emphasis added). Mr. Weadock testified that he "ha[d]n't done that analysis" of "the kinds of things an expert would consider when trying to determine whether asking a program to receive information from an input device is calling it," not that he had not considered such things. Ex. 2089, 92:22–93:6. Earlier in the deposition, Mr. Weadock testified that "when you call a program, typically a normal person of skill in the art would understand that to mean launching an application or possibly asking an application to do a task, to perform some function," (*Id.* at 91:16–20) and that receiving input from an input device "could be" asking the application to perform a function. Therefore we are not persuaded that Mr. Weadock failed to consider how a person of ordinary skill in the art would consider "call" as recited in the proposed substitute claim language.

For the foregoing reasons, we decline to exclude Mr. Weadock's testimony.

K. SurfCast's Motion to Exclude

SurfCast's Motion to Exclude seeks to exclude the following items of evidence:

(1)   Mr. Weadock's cross-examination testimony pertaining to his first declaration (Ex. 2089, 14:1–30:2);

(2)   Dr. Karger's redirect testimony (Ex. 1113, 210:9–211:20);

(3)   Exhibits 1085–1101 and 1107–1109;

(4)   Dr. Karger's Declaration (Exhibit 1110 ¶¶ 54, 55, 57, 116, 122, 131, 132) filed in support of Microsoft's Reply to SurfCast's Patent Owner Response, and the exhibits cited therein (Exhibits 1090, 1091, 1093–1098);

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    (5)   Testimony of Klaus Lagermann (Exhibits 2075 and 1104, 57:8-58:17);

    (6)   Testimony of Glenn Weadock (Exhibits 2077 and 1106, 27:9-16, 60:15-63:7, 121:13-122:6, 132:30-133:3);

    (7)   Testimony of Richard Bone (Exhibits 2073 and 1102, 54:16-56:5, 64:19-65:22).

Paper 72. Microsoft filed an Opposition to SurfCast's Motion to Exclude. Paper 79. SurfCast filed a Reply to SurfCast's Opposition to its Motion to Exclude. Paper 85. As movant, SurfCast has the burden of proof to establish that it is entitled to the requested relief. *See* 37 C.F.R. § 42.20(c). For the reasons stated below, SurfCast's Motion to Exclude is *denied-in-part* and *dismissed-in-part.*

   1. Mr. Weadock's cross-examination testimony (Ex. 2089)

SurfCast moves to exclude page 14, line 1 to page 30, line 2 of the deposition (Ex. 2089) of its expert, Mr. Weadock. Paper 72, 1. A motion to exclude must explain the objection. 37 C.F.R. § 42.64(c). Specifically, "[a] motion to exclude must: . . . (b) Identify where in the record the evidence sought to be excluded was relied upon by an opponent." Office Patent Trial Practice Guide, 77 Fed. Reg. at 48,767. Here, SurfCast's Motion to exclude does not indicate that Microsoft relied upon the testimony sought to be excluded. In any event, since we have not relied upon page 14, line 1 to page 30, line 2 of Exhibit 2089, the motion is *dismissed* as moot as to these paragraphs.

   2. Dr. Karger's redirect testimony (Ex. 1113)

SurfCast moves to exclude page 210, line 9 to page 211, line 20 of the deposition (Ex. 1113) of Microsoft's expert, Dr. Karger. Paper 72, 2. Again,

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SurfCast's Motion to Exclude does not indicate that Microsoft relied upon the testimony sought to be excluded. In any event, since we have not relied upon page 210, line 9 to page 211, line 20 of Exhibit 1113, the motion is *dismissed* as moot as to these paragraphs.

3. *Exhibits 1085–1101 and 1107–1109*

SurfCast moves to exclude Exhibits 1085–1101 and 1107–1109 as irrelevant under FRE 401. Paper 72, 2–7. SurfCast moves to exclude Exhibits 1090 and 1091 on the additional basis that they are misleading. *Id.* SurfCast moves to exclude Exhibits 1095–1098 on the additional basis that they are untimely. *Id.* Since we have not relied upon Exhibits 1085–1101 and 1107–1109, the motion is *dismissed* as moot as to these exhibits.

4. *Dr. Karger's Declaration (Ex. 1110) and exhibits cited therein*

SurfCast moves to exclude paragraphs 54 and 55 of a Declaration of Dr. Karger (Ex. 1110) and the references cited in those paragraphs (Exhibits 1090, 1091, 1093, 1094) as exceeding the proper scope of a reply. Paper 72, 7–8. SurfCast argued in its Patent Owner Response that those terms should be construed to exclude overlapping. PO Resp. 12–18. The testimony in paragraphs 54 and 55 relates to whether "partitioning a visual display into an array of tiles" / "arrange a display into an array of tiles" should be construed to exclude overlapping partitions. Ex. 1110 ¶¶ 54, 55. Accordingly, we determine that paragraphs 54 and 55 are directly responsive to SurfCast's claim construction arguments.

SurfCast also moves to exclude paragraph 57, which relates to whether MSIE Kit discloses non-overlapping tiles. Paper 72, 8. SurfCast argued in its Patent Owner Response that MSIE Kit does not teach non-

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overlapping tiles. PO Resp. 51–52. The testimony in paragraph 57 relates to whether MSIE Kit discloses arranging Active Desktop items in a non-overlapping configuration. Accordingly, we determine that paragraph 57 is directly responsive to SurfCast's arguments.

SurfCast also moves to exclude paragraph 116 and 122, which relate to whether Active Desktop items in MSIE Kit can be selected to provide access to information or to an application program. Paper 72, 8–9. SurfCast argued in its Patent Owner Response that the Active Desktop items of MSIE Kit are not "tiles" because they do not "when selected, provide[] access to an information source," and they cannot be used to invoke an application such as a word processing or spreadsheet program. PO Resp. 47–51. The testimony in paragraphs 122 and 116 responds to whether active desktop items can be selected and provide access to information or applications. Accordingly, we determine that paragraphs 116 and 122 are directly responsive to SurfCast's arguments.

Finally, SurfCast moves to exclude paragraphs 131 and 132 on the grounds that the discussion of "hot spots" in MSIE Kit is new evidence not previously cited. Paper 72, 9. SurfCast raised the issue of "hot spots" in its Patent Owner Response by arguing, *inter alia*, that "a user cannot select an Active Desktop item itself, but rather can only select a link or a hot spot inside the Active Desktop item." PO Resp. 48. The testimony in paragraphs 131 and 132 responds to whether hot spots can be selected. Accordingly, we determine that paragraph 131 and 132 are directly responsive to SurfCast's arguments.

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For the foregoing reasons, the motion is *denied* as to paragraphs 54, 55, 57, 116, 122, 131, and 132 of Exhibit 1110 and Exhibits 1090, 1091, 1093, and 1094.

 5. *Lagermann Testimony (Exs. 1104, 2075)*

SurfCast moves to exclude page 57, line 8 to page 58, line 17 of a deposition (Exs. 1104, 2075) of an inventor, Mr. Lagermann. Paper 72, 9–10. The transcript reflects three objections to form. In its Motion to Exclude, SurfCast does not explain the nature of the objection to form, but we understand SurfCast to object to the leading form of the question. Leading questions are permitted on cross-examination. Fed. R. Evid. 611. SurfCast's witness was under cross-examination by Microsoft's counsel. Microsoft's counsel was, therefore, permitted to use leading questions. Accordingly, the motion is *denied* as to page 57, line 8 to page 58, line 17 of each of Exhibits 1104 and 2075.

 6. *Weadock Testimony (Exs. 1106, 2077)*

SurfCast moves to exclude (1) page 27, lines 9–16; (2) page 121, line 13 to page 122, line 6; (3) page 132, line 20 to page 133, line 3; and (4) page 60, line 15 to page 63, line 7 of a deposition (Exs. 1106, 2077) of SurfCast's expert, Mr. Weadock. Paper 72, 10. The transcript reflects objections to form. In its Motion to Exclude, SurfCast does not explain the nature of the objection to form. We understand SurfCast to object to the leading form of the question. As we explained above, Microsoft's counsel was permitted to use leading questions because SurfCast's witness was under cross-examination. Fed. R. Evid. 611. Accordingly, the motion is *denied* as to (1) page 27, lines 9–16; (2) page 121, line 13 to page 122, line 6; (3) page 132,

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line 20 to page 133, line 3; and (4) page 60, line 15 to page 63, line 7 of each
of Exhibits 1106 and 2077.

7. *Bone Testimony (Exs. 1102, 2073)*

SurfCast moves to exclude (1) page 64, line 19 to page 65, line 22;
and (2) page 54, line 16 to page 56, line 5 of a deposition (Exs. 1102, 2073)
of Dr. Bone. Paper 72, 10–11. The first portion of transcript reflects only a
relevance objection. We are persuaded by Microsoft's argument that this
testimony is relevant to the credibility of Dr. Bone. Paper 79, 13. The
second portion of transcript reflects an objection and an assertion of
privilege. As Microsoft notes, however, the cited passage *is* the assertion of
privilege. Dr. Bone did not answer to the question, so there is no privileged
testimony to exclude. Microsoft relies on only the fact that privilege was
asserted; not on any privileged information. Accordingly, the motion is
denied as to (1) page 64, line 19 to page 65, line 22; and (2) page 54, line 16
to page 56, line 5 of each of Exhibits 1102 and 2073.

III. CONCLUSION

Microsoft has met its burden of proof by a preponderance of the
evidence in showing that claims 1–52 of the '403 patent are unpatentable
based on the following grounds of unpatentability:

Reference[s]	Basis	Claims Challenged
Duhault II	§ 102(e)	1–13, 17–28, 30–33, 35–37, 39–43, and 46–50
Chen	§ 102(b)	1, 9–11, 22, 41–43, 46, and 48–50
Chen and MSIE Kit	§ 103(a)	29

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Reference[s]	Basis	Claims Challenged
MSIE Kit	§ 102(b)	1–3, 5–8, 11, 12, 14–16, 19, 21, 22, 27, 30, 32, 34, 37–40, 43–47, and 50–52
MSIE Kit and Brown	§ 103(a)	17, 20, 25, and 28
Duperrouzel	§ 102(e)	1–3, 5–8, 12–14, 19, 21, 22, 27, 30, 32, 34, 37–40, 46, and 47
Duperrouzel and Brown	§ 103	17, 20, 25, and 28

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 1–52 of the '403 patent are held unpatentable;

FURTHER ORDERED that SurfCast's Motion to Amend Claims is *denied*;

FURTHER ORDERED that Microsoft's Motion to Exclude is *granted-in-part* with respect to Exhibits 2009, 2010, 2011, 2012, 2015, 2016, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2034, 2035, 2036, 2037, 2038, 2049, 2050–2052, 2065, 2067, and 2068, and otherwise is *denied-in-part*;

FURTHER ORDERED that SurfCast's Motion to Exclude is *denied-in-part* and *dismissed-in-part*;

FURTHER ORDERED that a copy of this Decision be entered into the files of Cases IPR2013-00292, IPR2013-00293, IPR2013-00294, and IPR2013-00295; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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Paper 96
Entered: January 6, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

———————

MICROSOFT CORPORATION
Petitioner

v.

SURFCAST, INC.
Patent Owner

———————

Case IPR2013-00292[1]
Patent 6,724,403

———————

Before MICHAEL P. TIERNEY, JONI Y. CHANG,
MATTHEW R. CLEMENTS, *Administrative Patent Judge.*

DECISISON
Request for Rehearing
37 C.F.R. § 42.71

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[1] Cases IPR2013-00293, IPR2013-00294, and IPR2013-00295 have been
consolidated with the instant proceeding.

Case IPR2013-00292
Patent 6,724,403

On November 14, 2014, SurfCast, Inc. ("Patent Owner") filed a request for rehearing of the final written decision (Paper 93, "Dec.")[2] holding claims 1–52 of U.S. Patent No. 6,724,403 ("the '403 patent") unpatentable. Paper 94 ("Req."). The final written decision held, *inter alia*, claim 34 unpatentable under (1) 35 U.S.C. § 102(b) as anticipated by MSIE Kit; and (2) 35 U.S.C. § 102(e) as anticipated by Duperrouzel. Dec. 34–41, 63. Patent Owner seeks reconsideration of the decision to hold claim 34 unpatentable on the grounds that:

1. Neither MSIE Kit nor Duperrouzel disclose a graphical user interface element that "when selected, provides access an information source" as required by the Board's construction of "tile;"

2. The Board improperly construed "tile" by omitting the requirements that it be (1) "persistent," which Duperrouzel's display panes are not; and (2) have an information source "assigned to the tile," which MSIE Kit's active desktop items do not; and

3. The Board improperly applied the broadest reasonable interpretation standard for claim construction.

The request for rehearing is *denied*.

I.   ANALYSIS

In pertinent part, 37 C.F.R. § 42.71(d) states:

The burden of showing a decision should be modified lies with the party challenging the decision. The request must specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each

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[2] Citations are to IPR2013-00292 unless otherwise noted.

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matter was previously addressed in a motion, an opposition, or a reply.

We have reviewed Patent Owner's request for rehearing and carefully considered Patent Owner's arguments. We are not persuaded, however, that the Board misapprehended or overlooked Patent Owner's arguments presented in its response or evidence with respect to the patentability of claim 34. We now address Patent Owner's arguments presented in its request for rehearing in turn.

"when selected, provides access to an information source"

Patent Owner alleges that the Board misapprehended and/or overlooked evidence that MSIE Kit's Active Desktop items and Duperrouzel's display panes do not "when selected, provide[] access to an information source," as we construed "tile" to require. Req. 2–3. With respect to MSIE Kit, Patent Owner argues that the "only way to access information using an Active Desktop item is to select a link or hot spot *within* the information displayed in the items, not by selecting the item itself." Req. 3. We addressed this argument in the final written decision and found it unpersuasive. Dec. 36. That an Active Desktop item is capable of being configured in a way that does not provide access to an information source does not negate the fact that it is capable of being configured in a way that *does* provide access to an information source.

Patent Owner also argues that MSIE Kit does not support the Board's assertion that a "hot spot" can be an entire Active Desktop item. Req. 3–4. Petitioner cited page 420 of MSIE Kit, which defines a "hot spot" as "[e]stablish[ing] regions of the screen that can process mouse clicks." Ex. 1110 ¶ 131 (citing Ex. 1007, 420). Petitioner's expert, Dr. Klarger,

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testified that "one of ordinary skill in the art would have known how to create a hot spot and that it could be defined anywhere on an Active Desktop Item, including across the entire Item." Ex. 1110 ¶ 132. In its request for rehearing, Patent Owner identifies no evidence in MSIE Kit that suggests a "hot spot" cannot be an entire Active Desktop item. Accordingly, we are not persuaded that we overlooked or misapprehended the evidence with respect to MSIE Kit's "hot spot."

Patent Owner also argues that we misapplied our construction of tile to mean "when selected, provides *an ability to* access to an information source" instead of "when selected, provides access to an information source." Req. 4. To the extent that Patent Owner is arguing that selecting an Active Desktop item provides only "an ability" to access a web page because that selection merely enables a user to select a hyperlink within the Active Desktop item, that argument ignores the "hot spot" functionality of MSIE Kit. For the same reasons, we are not persuaded by Patent Owner's argument "[a]ny alleged access to the information source that does not result from the selection of the tile itself, reads the 'when selected' requirement out of the Board's construction." Req. 5. If selecting the link is not possible unless the Active Desktop item has previously been selected, then selection of the Active Desktop item provides access to (i.e., the ability to select hyperlinks within) the information source (i.e., the information shown in the Active Desktop item).

With respect to Duperrouzel, Patent Owner argues that we misapprehended or overlooked "evidence that selecting one of Duperrouzel's display panes does not provide access to underlying web page information." Req. 5–7. We addressed this argument in the final written

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decision and found it unpersuasive. Dec. 40–41. As an initial matter, Patent Owner's arguments about maximizing are misplaced insofar as our final written decision is not based on the maximizing functionality in Duperrouzel. *Id.* In the final written decision, we determined that "a display pane, when selected, provides access to (i.e., the ability to scroll to see more of) the information source (i.e., web page)." Dec. 41. Patent Owner does not dispute that, but argues that the ability to scroll is not "access to an information source," because it is merely "an ability to access" an information source. Req. 6. We disagree. The '403 patent does not define "access to an information source" in a way that excludes the ability to scroll within the information source. In fact, the '403 patent discloses an embodiment in which a "tile" is "a web browser tile called a surftile 1602." Ex. 1001, 15:14–18. Duperrouzel's accessing of web page via a browser, including scrolling the web page, is therefore consistent with the Specification of the '403 patent. Thus, we are not persuaded that we misapprehended or overlooked evidence in finding that Duperrouzel's display pane "when selected, provides access to an information source" because it, when selected, lets a user scroll within the web page.

Claim construction of "tile"

Patent Owner argues that we misapprehended or overlooked the evidence cited in support of its proposed construction of "tile" to require "persistence" because (1) when a claim term has no plain and ordinary meaning, the term must be accorded the meaning suggested by the Specification; and (2) *Rodime PLC v. Seagate Techs., Inc.*, 174 F.3d 1294 (Fed. Cir. 1999) is inapplicable because the claims at issue are not means-plus-functions claims. Req. 7–9. We addressed Patent Owner's argument

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and evidence in our final written decision and found it unpersuasive.
Dec. 9–10. As we explained, "[n]one of the passages of the '403 patent
relied upon by SurfCast 'define' a 'tile' as requiring persistence. We,
therefore, decline to import limitations from an exemplary implementation."
Dec. 9. Nothing in Patent Owner's request for rehearing persuades us that
we overlooked or misapprehended the disclosure in the '403 patent.
Nowhere does the '403 patent set forth with reasonable clarity,
deliberateness, and precision that a "tile" must be persistent. Because we are
not persuaded that our construction of "tile" should be modified, we need
not address Patent Owner's arguments about whether Duperrouzel's display
panes are persistent.

Patent Owner also argues that we misapprehended or overlooked the
evidence cited in support of its proposed construction of "tile" to require that
an information source be "assigned to the tile" because the Board's
construction recites only "that access is provided to *an* information source,
which can read on *any* information source" and, therefore, "assigned to the
tile" is not superfluous because it specifies that the information source must
be one that is "assigned to the tile." Req. 10–14. We addressed Patent
Owner's argument and evidence in our final written decision and found it
unpersuasive. Dec. 8. Nothing in Patent Owner's request for rehearing
persuades us that we overlooked or misapprehended the disclosure in the
'403 patent. None of the claims require the recited "information source" to
be assigned to a tile, nor do they require the recited "tile" to be assigned to
an information source. They require only that a "tile" be "associated" with
an information source. That limitation in the claims is independent of our
construction of "tile." Moreover, the '403 patent nowhere sets forth with

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reasonable clarity, deliberateness, and precision that a "tile" must have an information source "assigned" to it. Because we are not persuaded that our construction of "tile" should be modified, we need not address Patent Owner's arguments about whether an information source is "assigned to" MSIE Kit's Active Desktop item.

Broadest reasonable interpretation

Patent Owner argues that the Board should have applied the *Phillips* standard instead of the broadest reasonable interpretation when construing the terms of the '403 patent because, as a practical matter, Patent Owner's ability to amend claims is precluded. Req. 14–15. We disagree. "A claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears." 37 C.F.R. § 42.100(b). Both the United States Courts of Customs and Patent Appeals and the United States Court of Appeals for the Federal Circuit have recognized that the broadest reasonable interpretation serves an important public interest and that a key factor in its use is that patent owners before the Office are provided an opportunity to amend their claims and obtain appropriate coverage for their inventions with express claim language. *See, e.g., In re Reuter*, 670 F.2d 1015 (CCPA 1981) (holding that broadest reasonable interpretation is applicable in reissue proceedings); *In re Yamamoto*, 740 F.2d 1569 (Fed. Cir. 1984) (holding that broadest reasonable interpretation is applicable in reexamination proceeding). Indeed, Patent Owner availed itself of the opportunity to amend by filing a Motion to Amend (Paper 28) and a Corrected Motion to Amend (Paper 76). Patent Owner argues in its request for rehearing that "the ability to amend the claims in an *Inter Partes* Review (IPR) has been so abrogated that it can no

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longer serve as justification for the applicability of [the broadest reasonable interpretation standard]" because, *inter alia*, "the Board limits motions to amend to 15 double spaced, 14 point font pages." Req. 14–15. Patent Owner conceded during oral argument, however, that it did not ask for additional pages. Paper 90, 83. We are not persuaded that we misapprehended or overlooked the proper claim construction standard for this *inter partes* review.

Conclusion

For the foregoing reasons, Patent Owner has not shown that the final written decision should be modified.

ORDER

Accordingly, it is:

ORDERED that Patent Owner's request for rehearing is *denied*.

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US006724403B1

(12) **United States Patent**

Santoro et al.

(10) **Patent No.:**   **US 6,724,403 B1**

(45) **Date of Patent:**   **Apr. 20, 2004**

(54) **SYSTEM AND METHOD FOR SIMULTANEOUS DISPLAY OF MULTIPLE INFORMATION SOURCES**

(75) Inventors: **Ovid Santoro**, London (GB); **Klaus Lagermann**, Copenhagen (DK)

(73) Assignee: **Surfcast, Inc.**, Palo Alto, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 259 days.

(21) Appl. No.: **09/702,325**

(22) Filed: **Oct. 30, 2000**

Related U.S. Application Data

(60) Provisional application No. 60/162,522, filed on Oct. 29, 1999.

(51) **Int. Cl.**[7] **G06F 15/00**
(52) **U.S. Cl.** **345/765**; 345/790
(58) **Field of Search** 345/765, 766, 345/764, 729, 781, 788, 716, 717, 792, 790

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(List continued on next page.)

Primary Examiner—Cao (Kevin) Nguyen
(74) *Attorney, Agent, or Firm*—Pennie & Edmonds LLP

(57) **ABSTRACT**

A computerized method of presenting information from a variety of sources on a display device. Specifically the present invention describes a graphical user interface for organizing the simultaneous display of information from a multitude of information sources. In particular, the present invention comprises a graphical user interface which organizes content from a variety of information sources into a grid of tiles, each of which can refresh its content independently of the others. The grid functionality manages the refresh rates of the multiple information sources. The present invention is intended to operate in a platform independent manner.

52 Claims, 27 Drawing Sheets
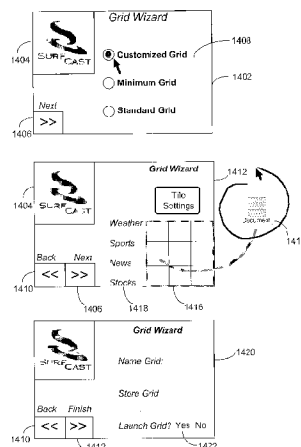
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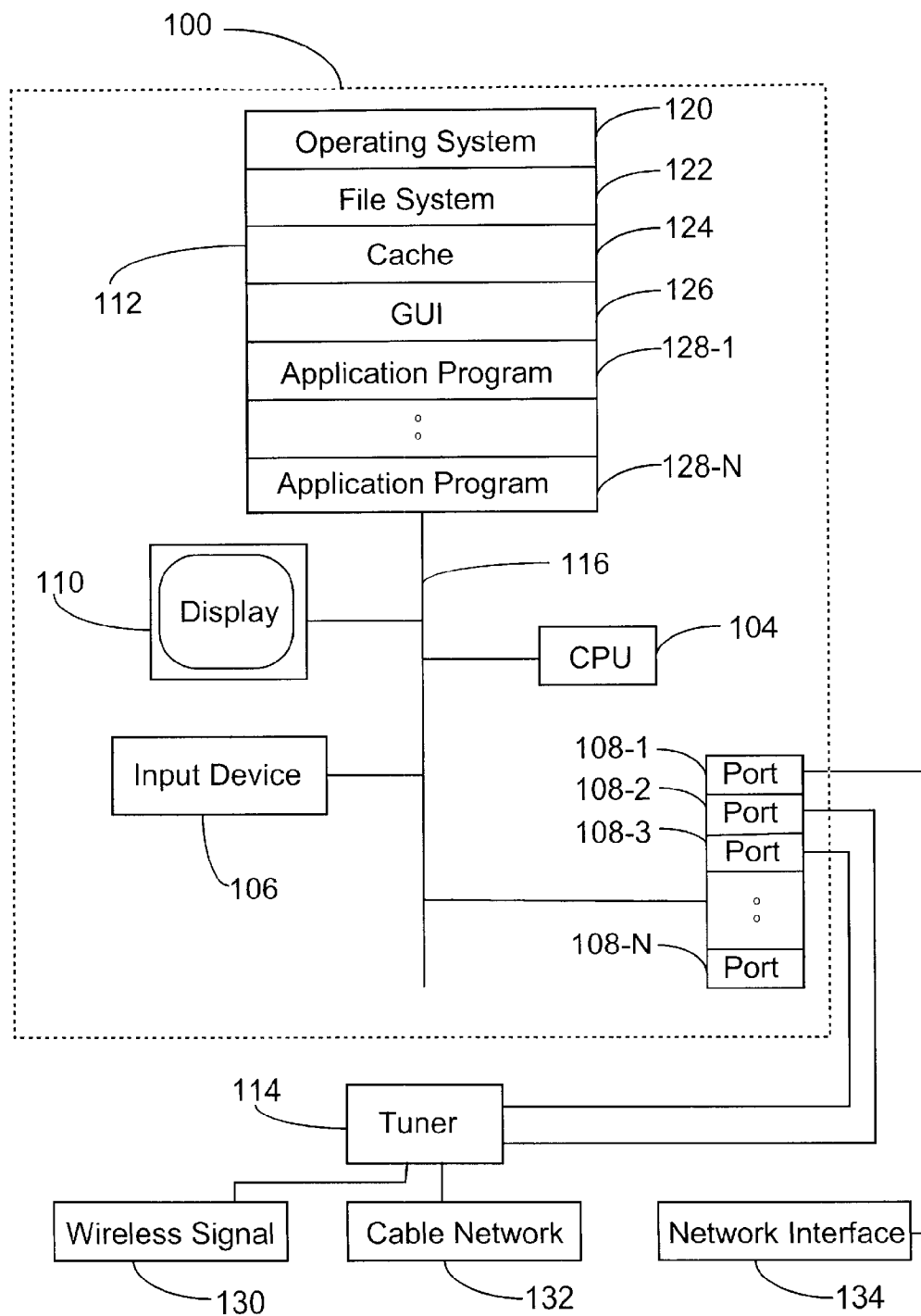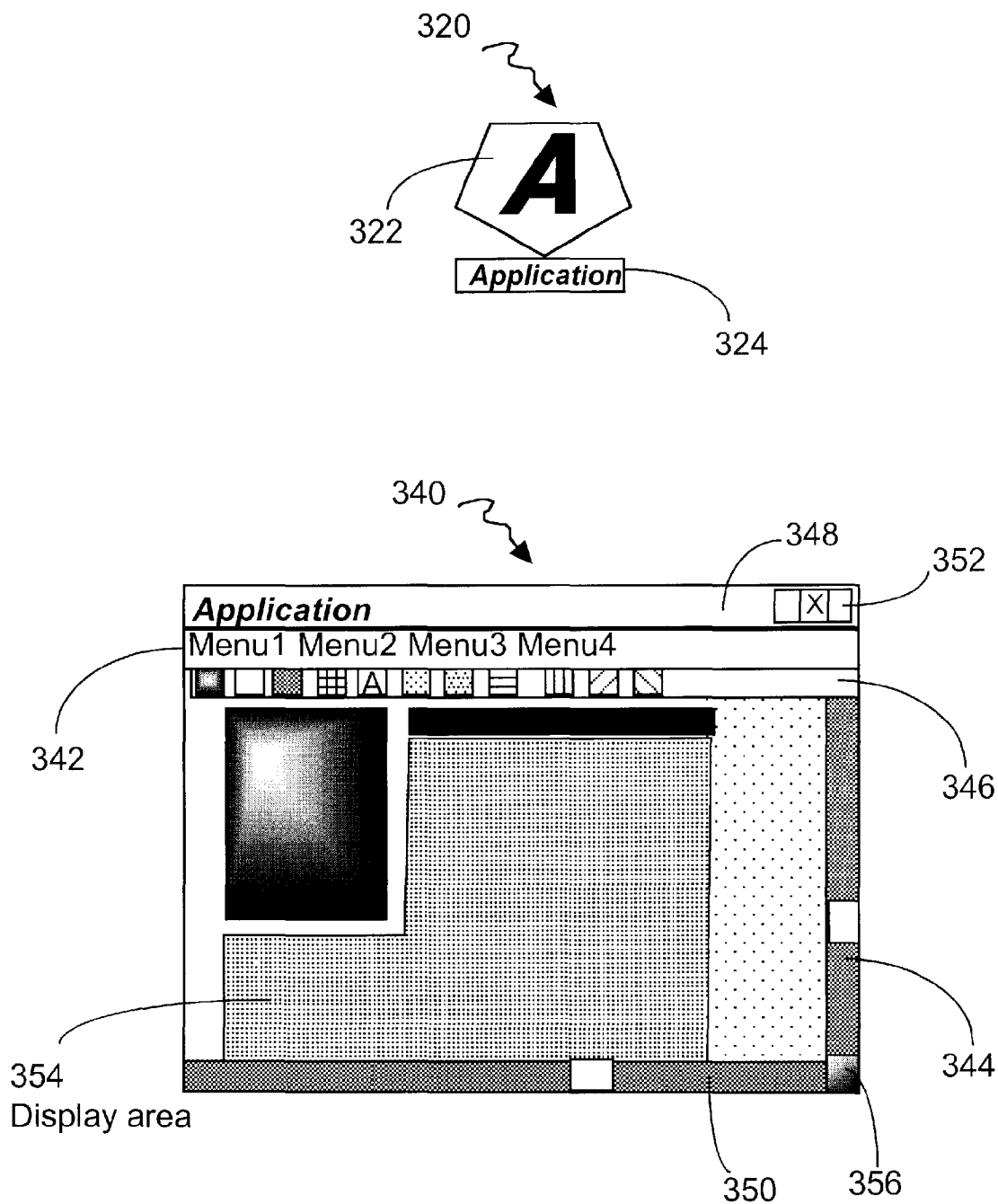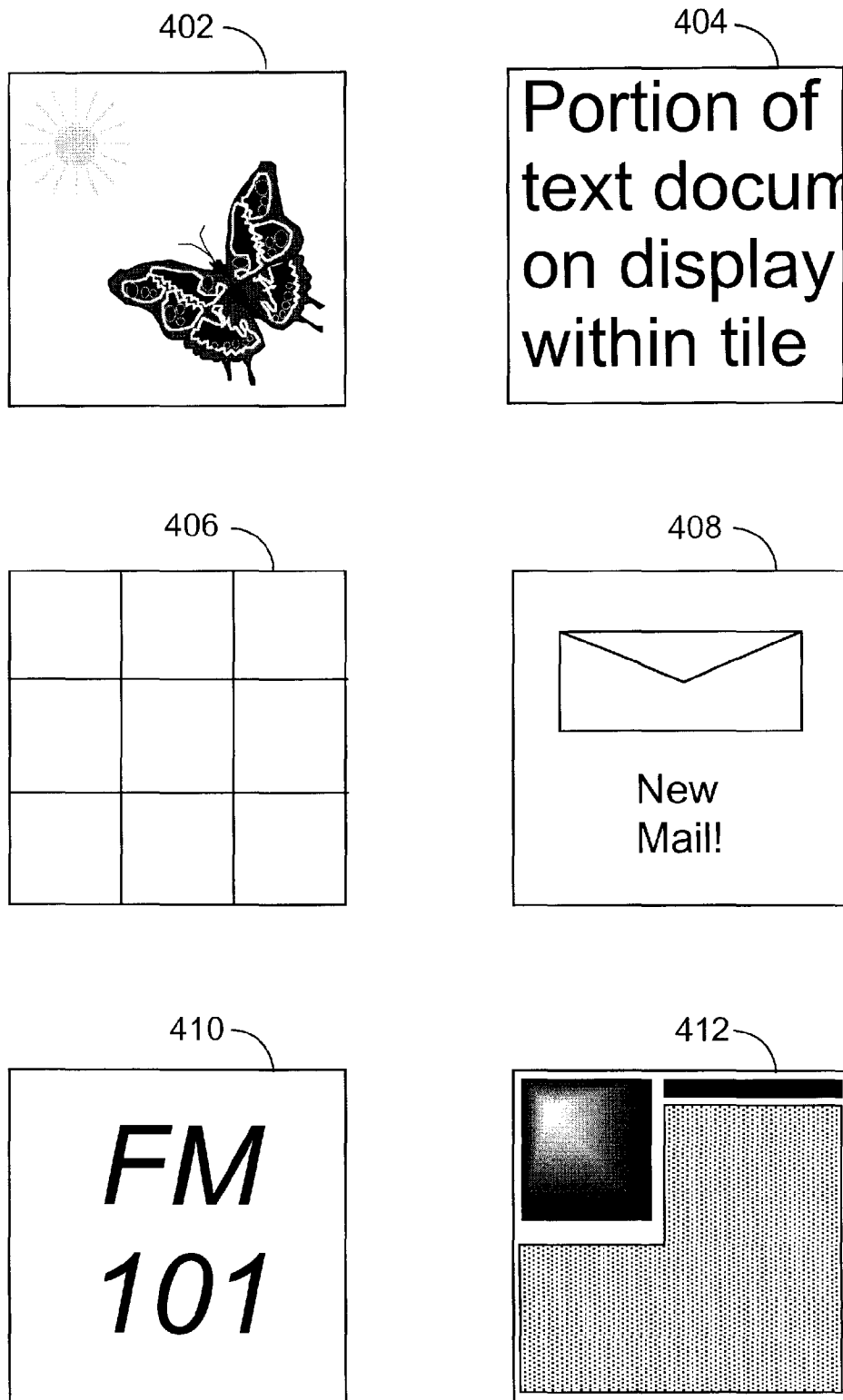
* cited by examiner

1

Fig. 1

100 —

120 — Operating System

122 — File System

124 — Cache

126 — GUI

128-1 — Application Program

° °

128-N — Application Program

112

110 — Display

116

104 — CPU

106 — Input Device

108-1 — Port
108-2 — Port
108-3 — Port
° °
108-N — Port

114 — Tuner

Wireless Signal — 130   Cable Network — 132   Network Interface — 134

Fig. 2

320

322   A

Application

324

340

348   352

Application

Menu1 Menu2 Menu3 Menu4

342

346

354
Display area

350   356

344

Fig.3
(Prior Art)

402

404

Portion of text docum on display within tile

406

408

New
Mail!

410

FM 101

412

Fig. 4

500

Tile Address
Target Address
Name
Initialisation function
Refresh function
Fill-screen function
Alarm function
Display option
On mouseout function
On mouseover function
Toolbar function

502 — Tile Address
504 — Target Address
506 — Name
508 — Initialisation function
510 — Refresh function
512 — Fill-screen function
514 — Alarm function
516 — Display option
518 — On mouseout function
520 — On mouseover function
522 — Toolbar function

Fig. 5

```
<TD><A HREF="tile2_target.htm"
     TARGET="new"
     ONMOUSEOVER=action1(arg3)
     ONMOUSEOUT=action2(arg4)
     REFRESH=timeout(500)
     SOURCE=http://www.camelot.castle/swords/excalibur.til
     CLICKMAP=    { 0,0,50,50, clickfunction1(clickargument1),
                    51,0,50,50, clickfunction2(clickargument2),
                    0,51,50,10, clickfunction3(clickargument3) }
     TOOLBAR={"local/toolbars/radio.too" PLACEMENT="bottom" }
     ALARM="alarms/condition_rain=TRUE, condition_weekend=FALSE,
            alarmaction=blow_the_horn">

</TD>
```
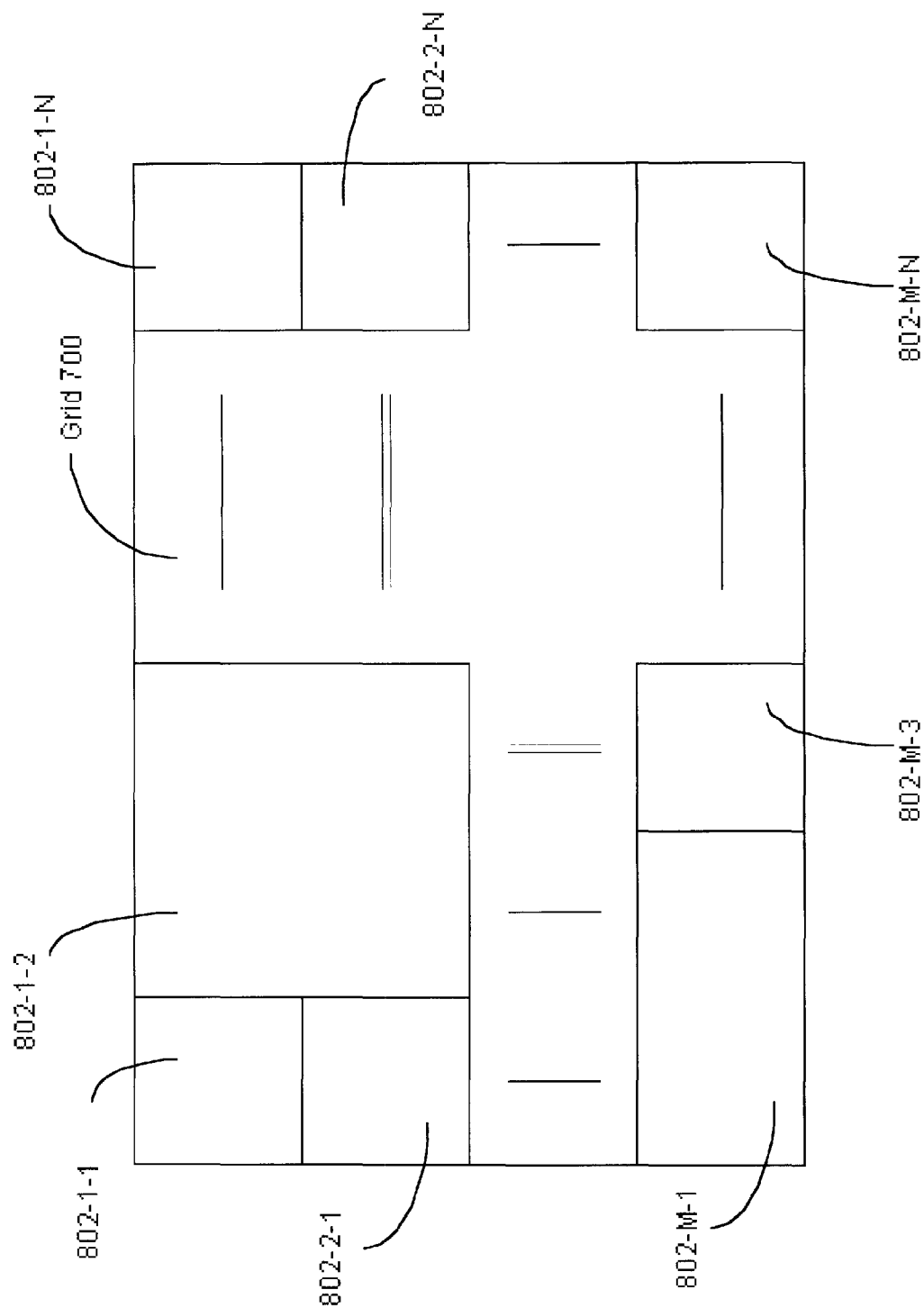
Fig. 6

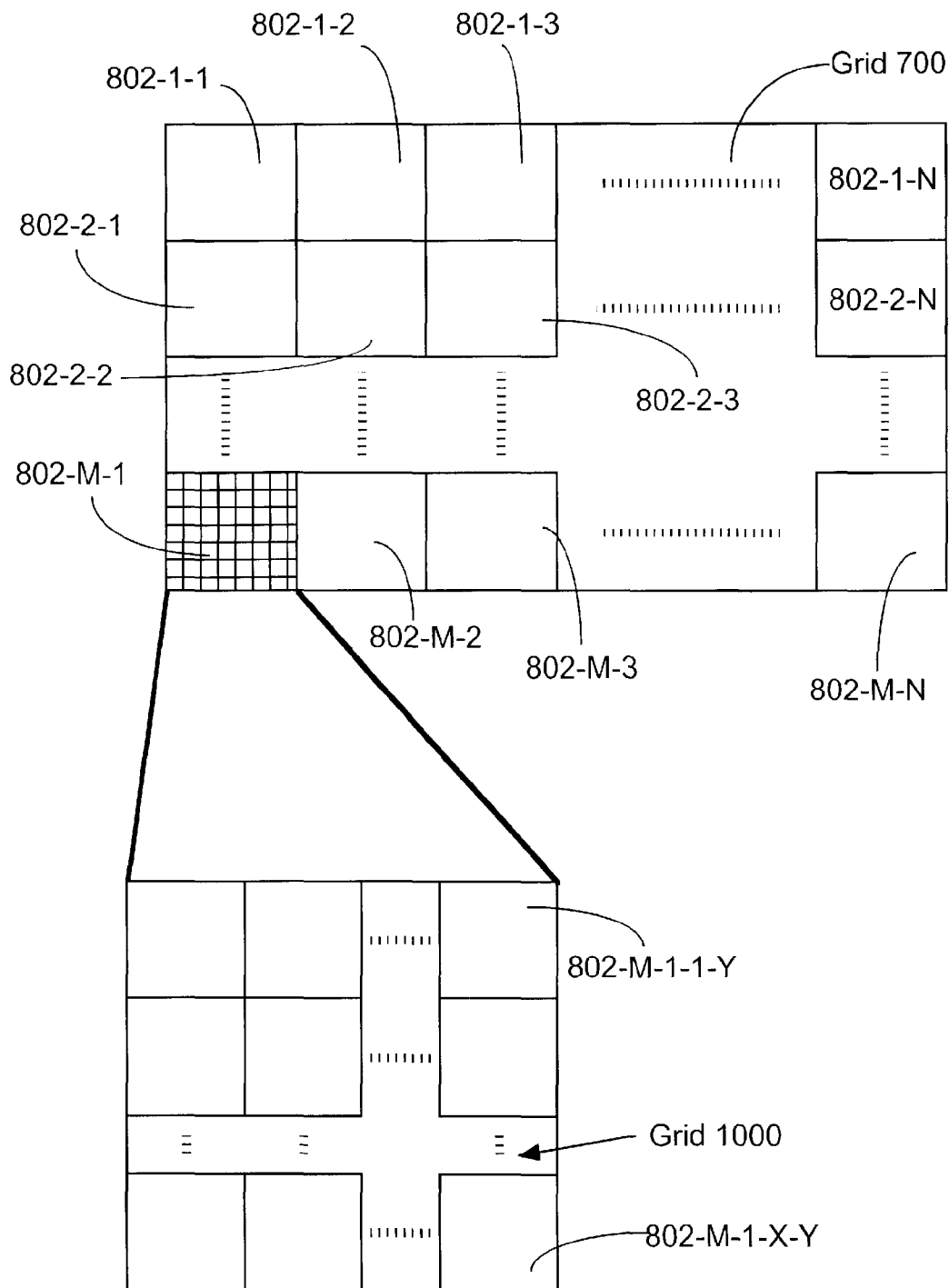Grid 700

702

Web-page Viewer 712

704

Streaming Video 714

706

Audio Player 716

708

File viewer 718

710

Grid 720

Fig. 7

Fig. 8

Fig. 9

Fig. 10

Fig. 11

1200

1202 — Parent Grid (address)						
1204 — Address of self						
1206 — Configuration Wizard						
1208 — Tile creation function						
1210 — Tile annihilation function						
1212 — Number of rows						
1214 — Number of columns						
1216 — Tile list	Address	Refresh rate	Position	Priority	Password	. . .
	Address	Refresh rate	Position	Priority	Password	. . .
	Address	Refresh rate	Position	Priority	Password	. . .
	Address	Refresh rate	Position	Priority	Password	. . .
	. . .	. . .	. . .	. . .	. . .	. . .
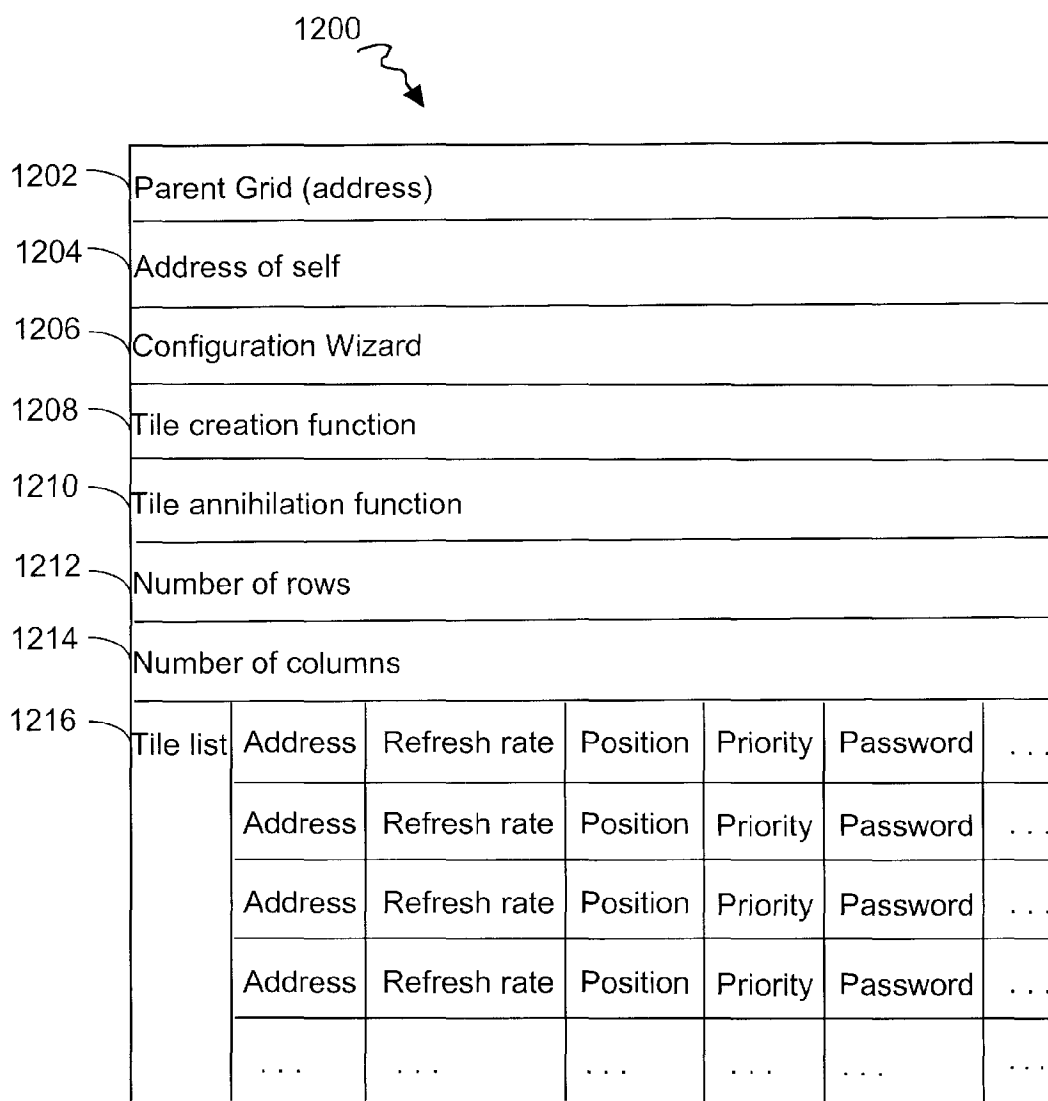
Fig. 12

```
<HTML>
<HEAD>
<TITLE>Surfcast Grid Example</TITLE>
<META NAME="Resource Manager" CONTENT="RESMGR.EXE">
<META NAME="Author" CONTENT="Surfcast, Inc.">
</HEAD>
...
<BODY BACKGROUND="surfback.gif">
<TABLE>
<TR>
<TD><A HREF="http://www.somewhere.com/sometarget.html"
        TARGET="new"
        ONMOUSEOVER=action1(arg1)
        ONMOUSEOUT=action2(arg2)
        REFRESH=timeout(200)

SOURCE="http://www.surfcast.com/tilelibrary/tile2.til">
</TD>


<TD><A
HREF="http://www.somewhereelse.com/someothertarget.html
"
        TARGET="new"
        ONMOUSEOVER=action3(arg3)
        ONMOUSEOUT=action4(arg4)
        REFRESH=timeout(500)

SOURCE="http://www.camelot.castle/swords/excalibur.til"
>
</TD>


<TD><A HREF="local/document.htm"
        TARGET="new"
        ONMOUSEOVER=action1(arg3)
        ONMOUSEOUT=action2(arg4)
        REFRESH=timeout(0)
        SOURCE="local/documents/somedocument.til">
</TD>

</TR>

</TABLE>
</BODY>
</HTML>
```
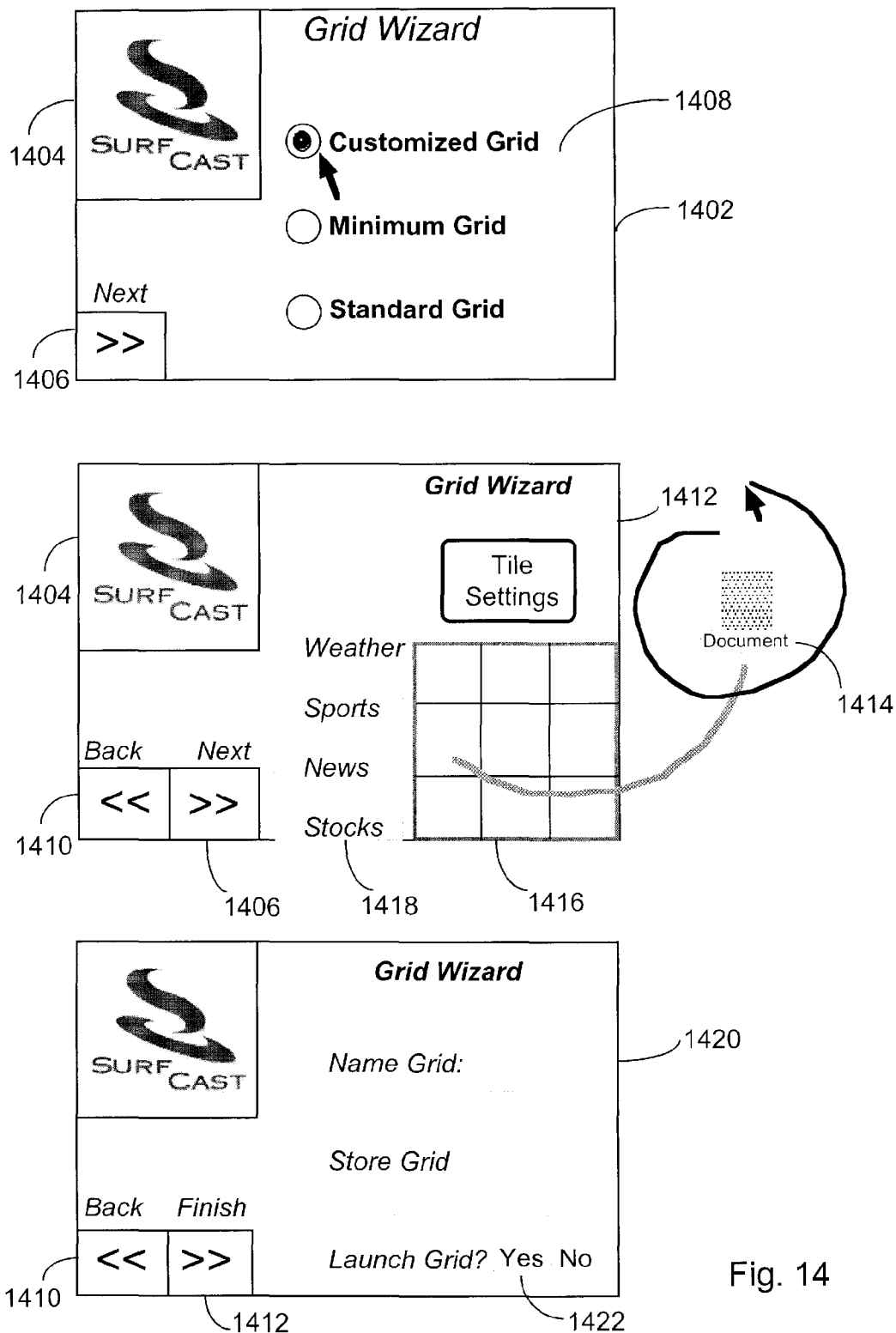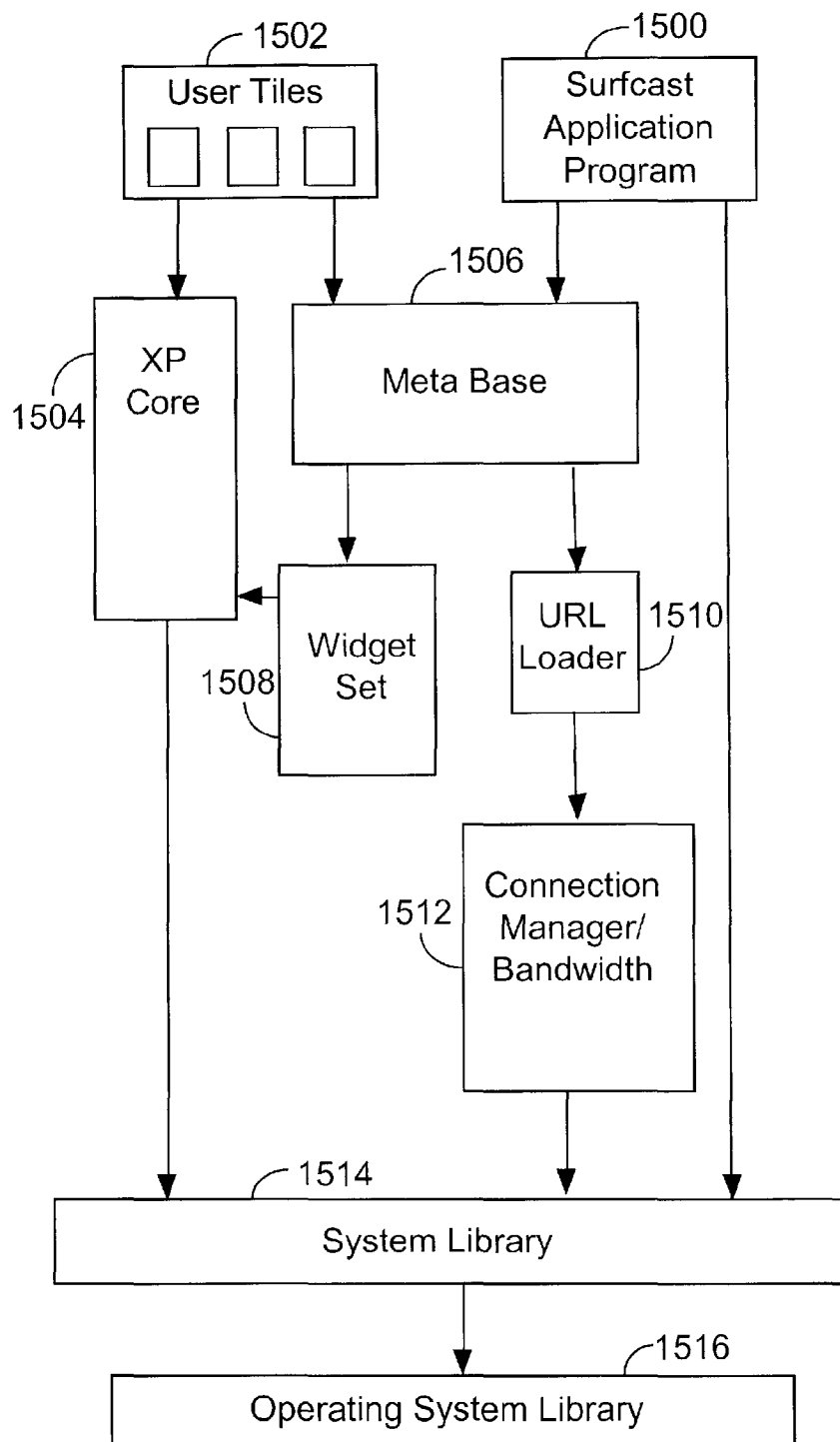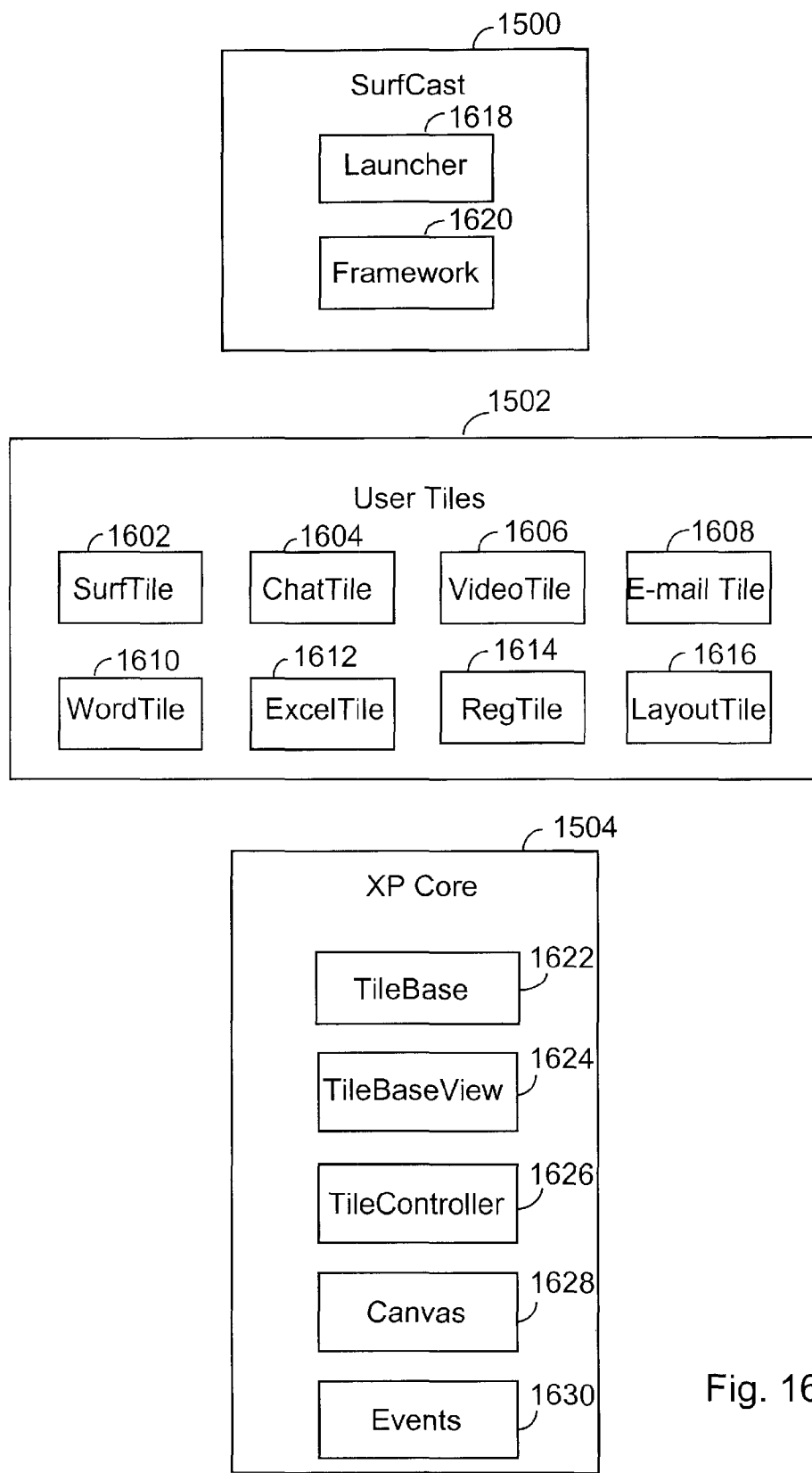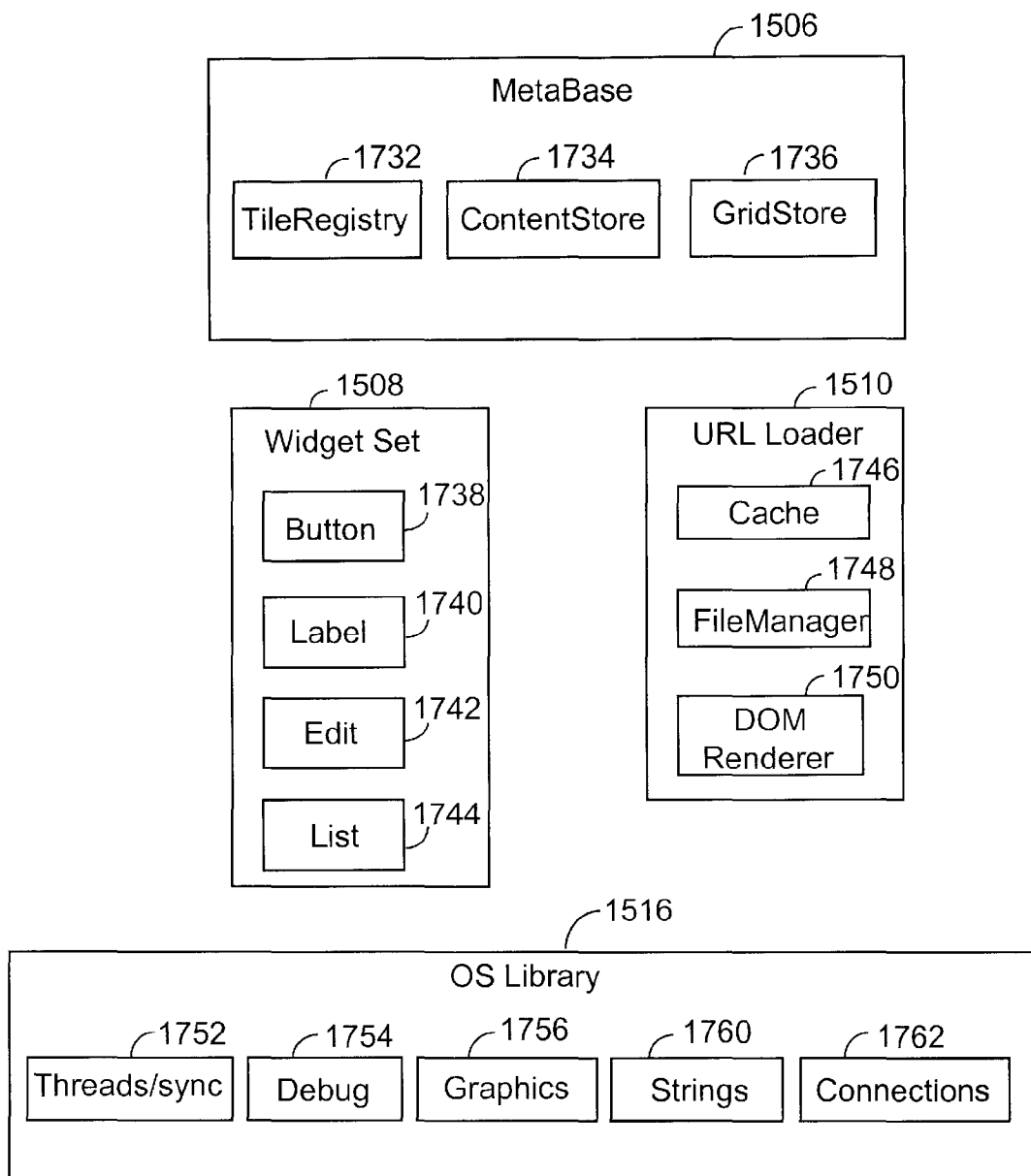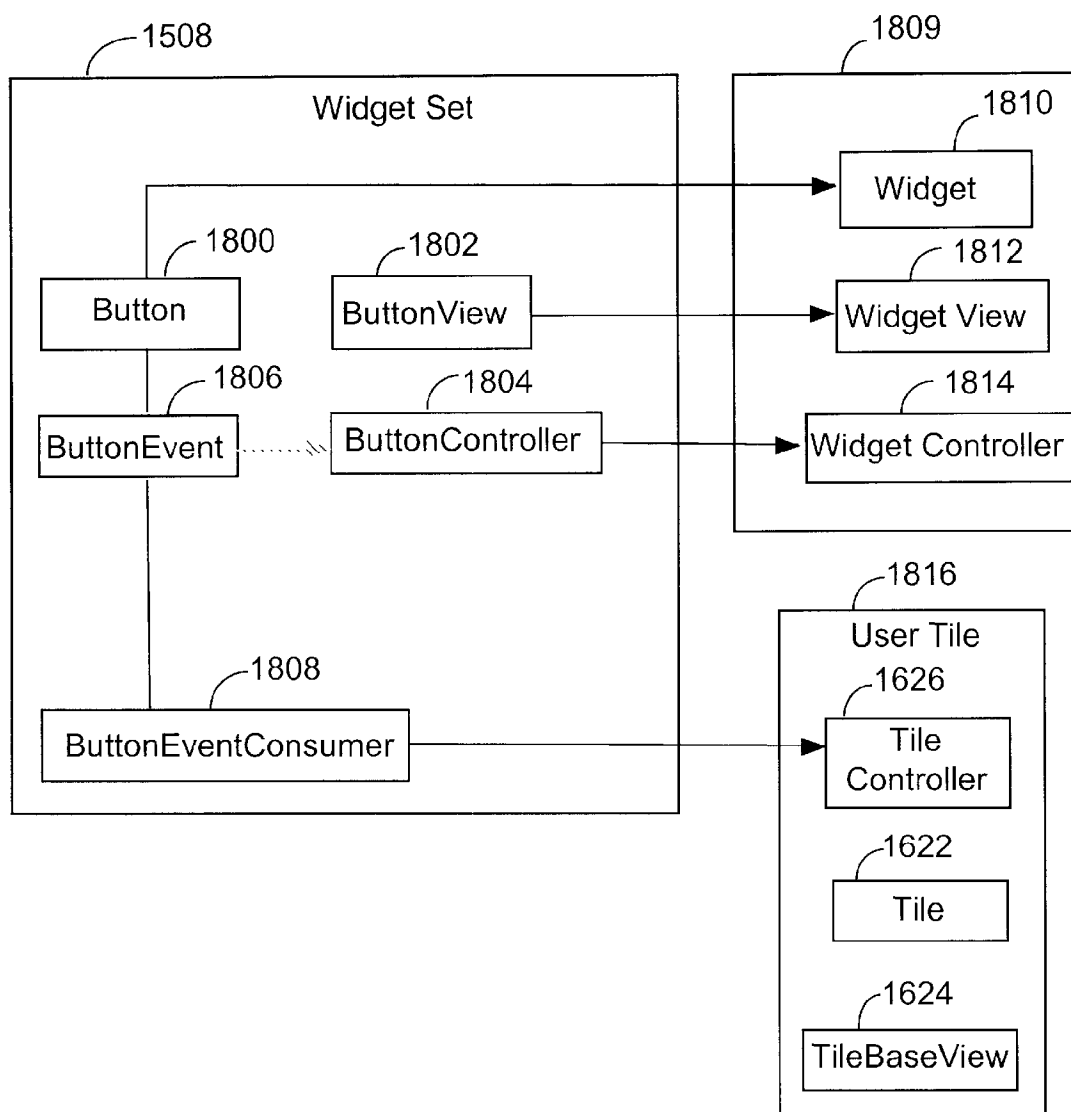
Fig. 13

Fig. 14

Fig. 15

Fig. 16

Fig. 17

Fig. 18

Fig. 19

Fig. 20

Fig. 21

2200

SurfWidget

2201 | Control Layer

2206 SurfWidget Controller

2204 Web Browser

2205 | URL Layer

2202 URL Manager

2208 URL Pre-fetch Manager

2209 | Connection Layer

2210 Connection Manager

2212 Connection Manager Cache

2215 | Protocol Layer

2214 HTTP Protocol Socket

2216 FTP Protocol Socket

2218 Surfcast Protocol Socket

2219 | Socket Layer

2220 Socket
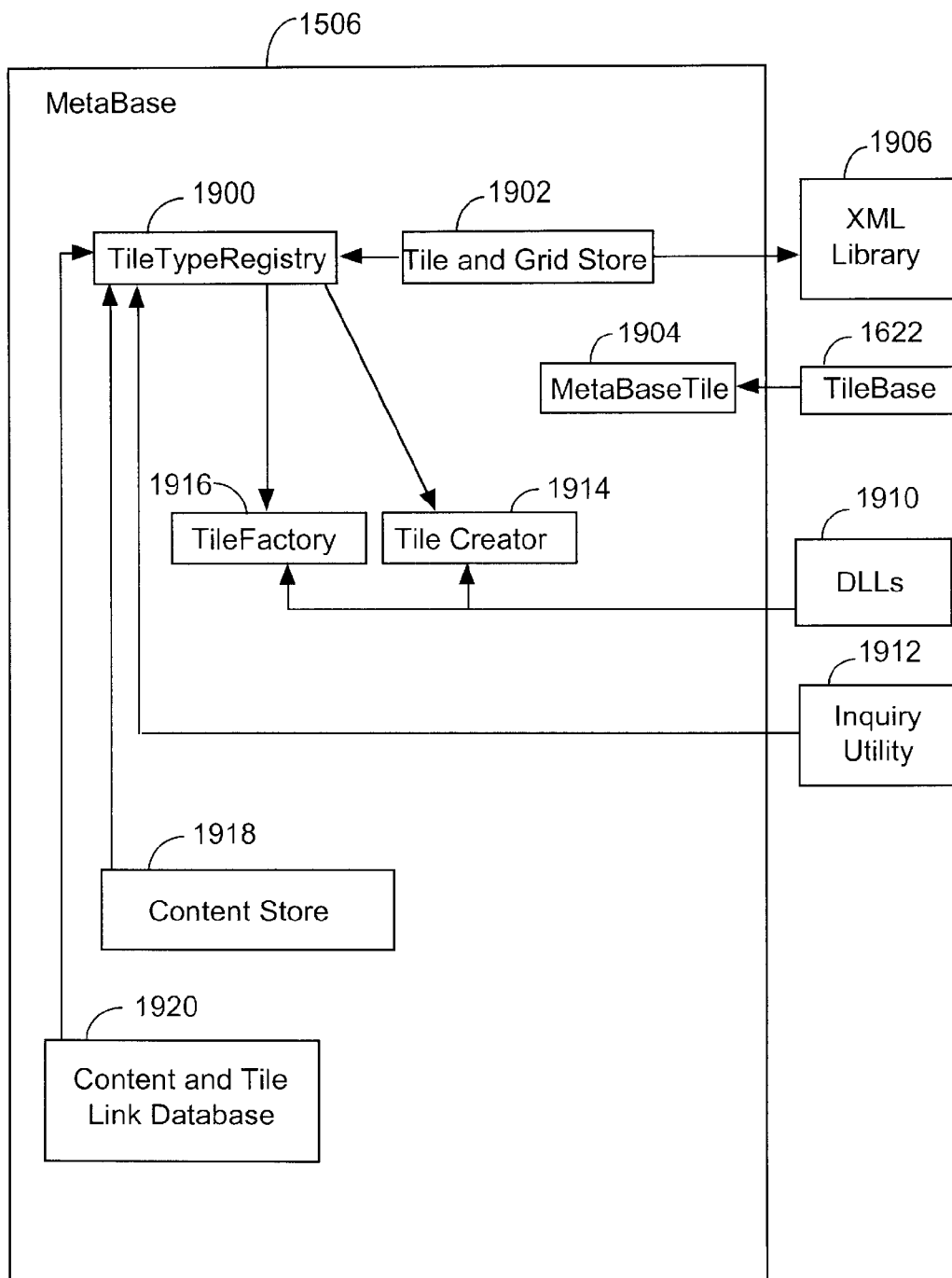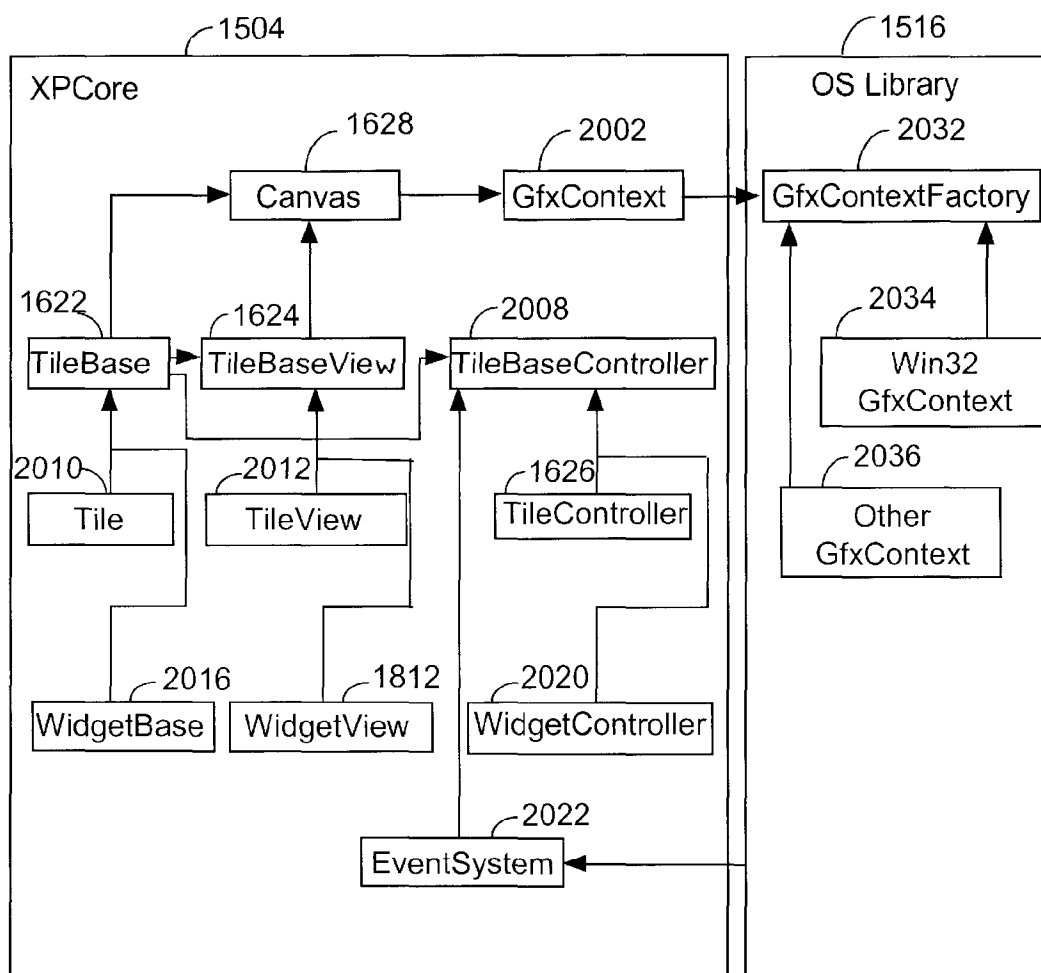
Fig. 22

2300

Bandwidth Controller

AddURL 2302

RemoveURL 2304

GetURLStatus 2306

GetStatus 2308

Fig. 23

Fig. 24

Fig. 25

Fig. 26

Fig. 27

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SYSTEM AND METHOD FOR SIMULTANEOUS DISPLAY OF MULTIPLE INFORMATION SOURCES

This application claims priority to provisional patent application entitled "System and Method For Simultaneous Display of Multiple Datastreams", Ser. No. 60/162,522, filed Oct. 29, 1999.

FIELD OF THE INVENTION

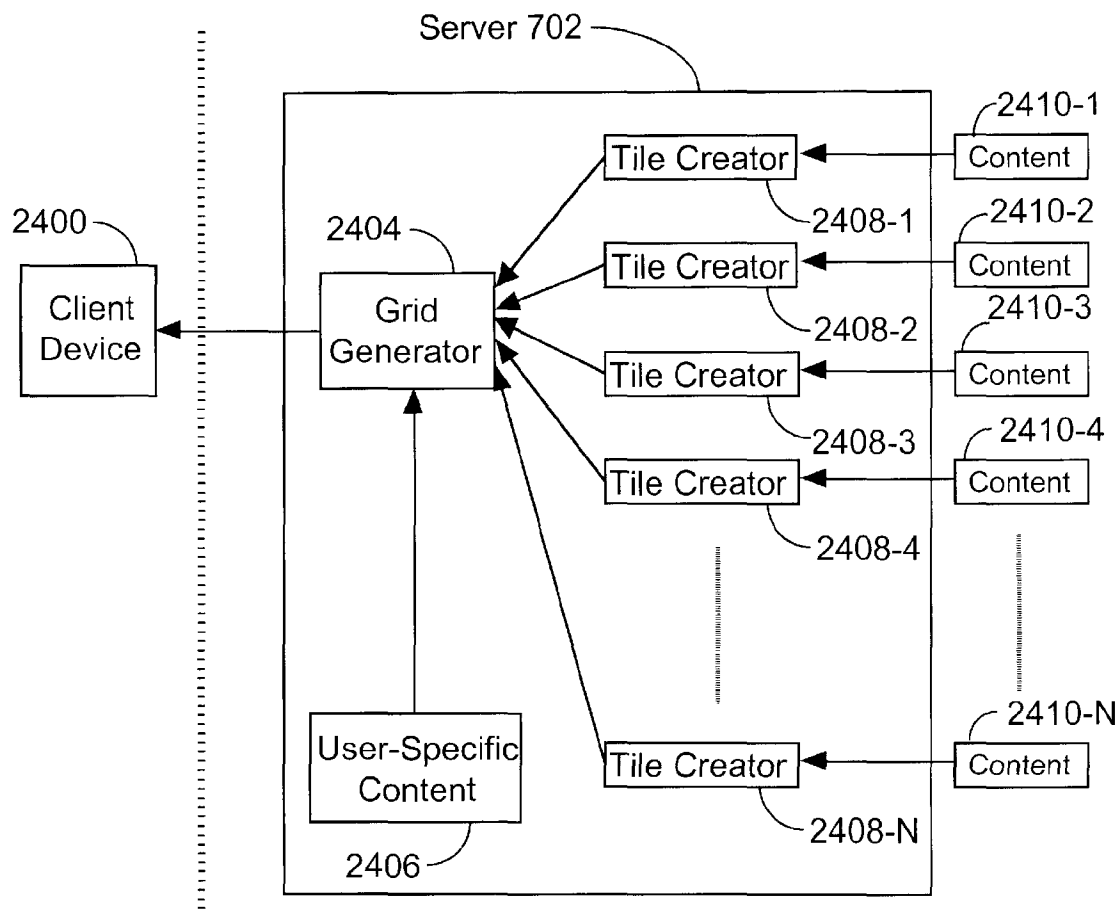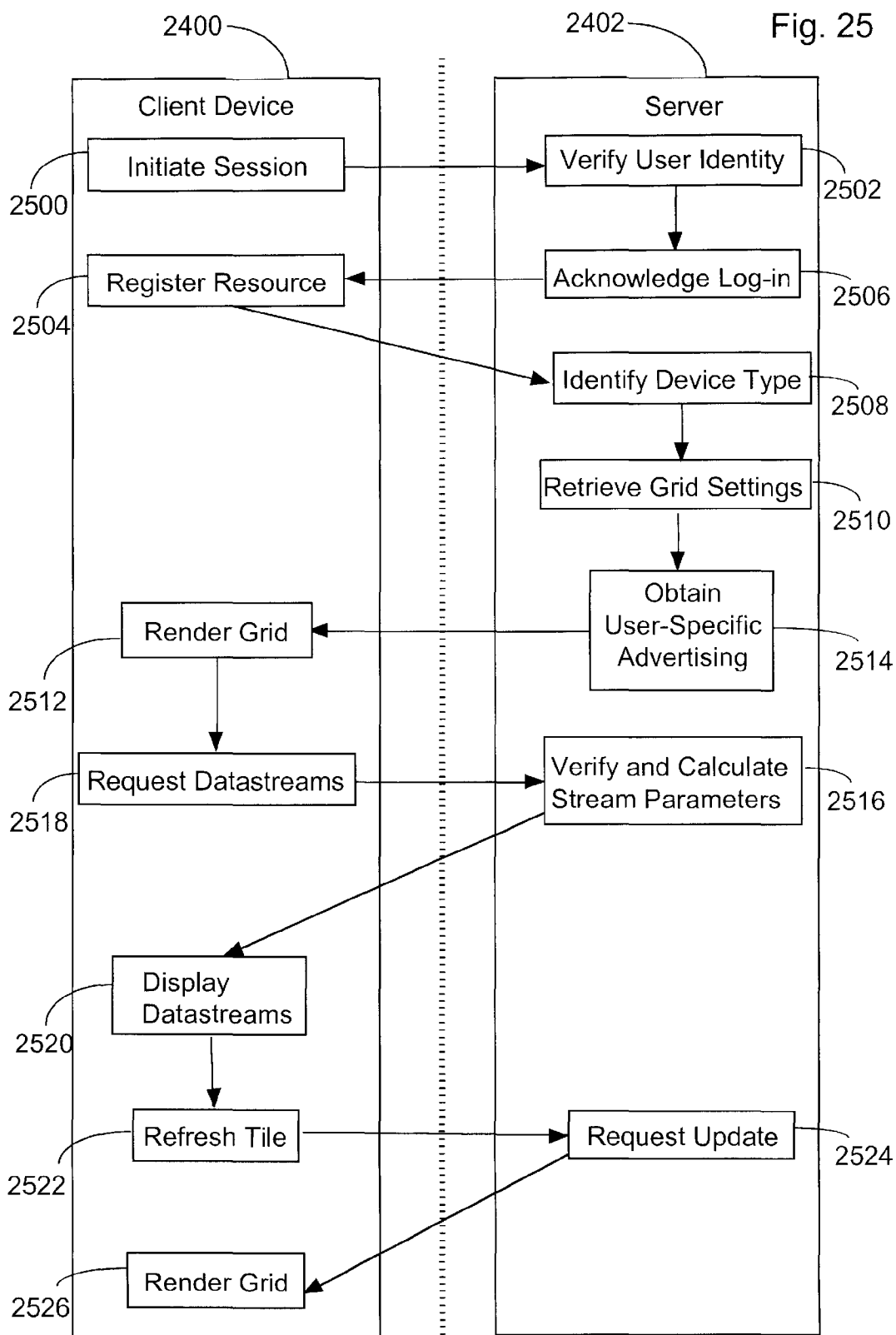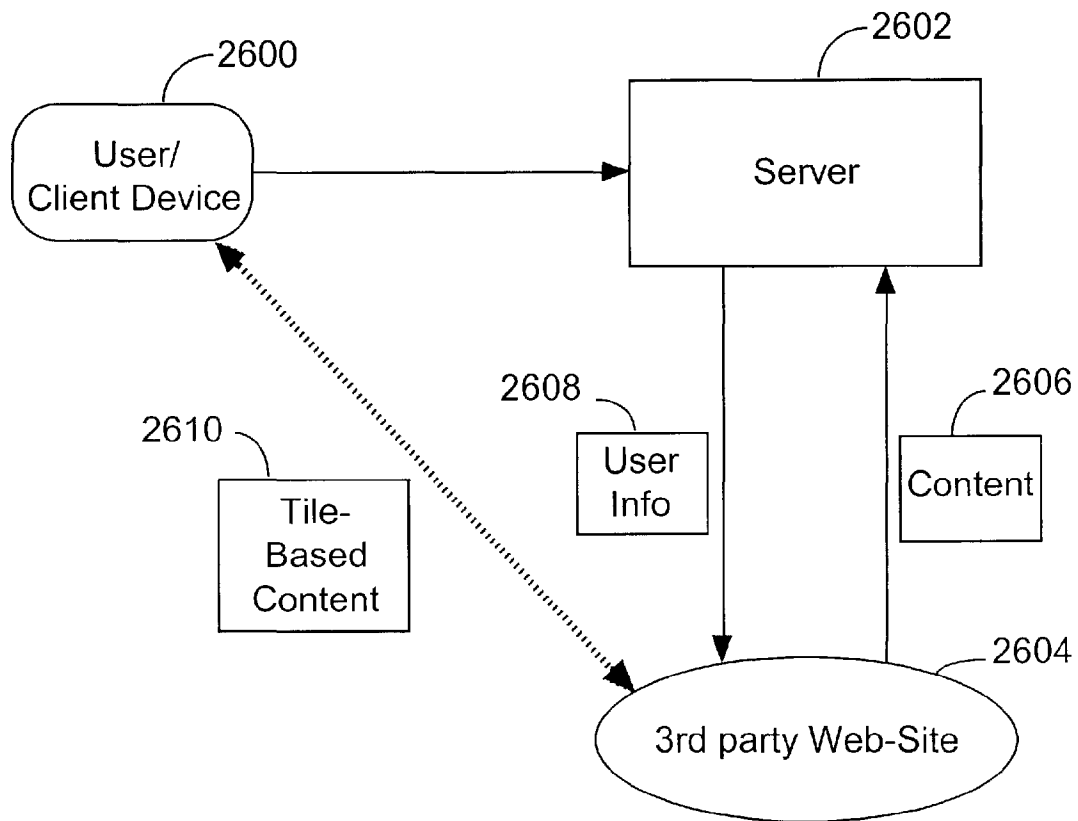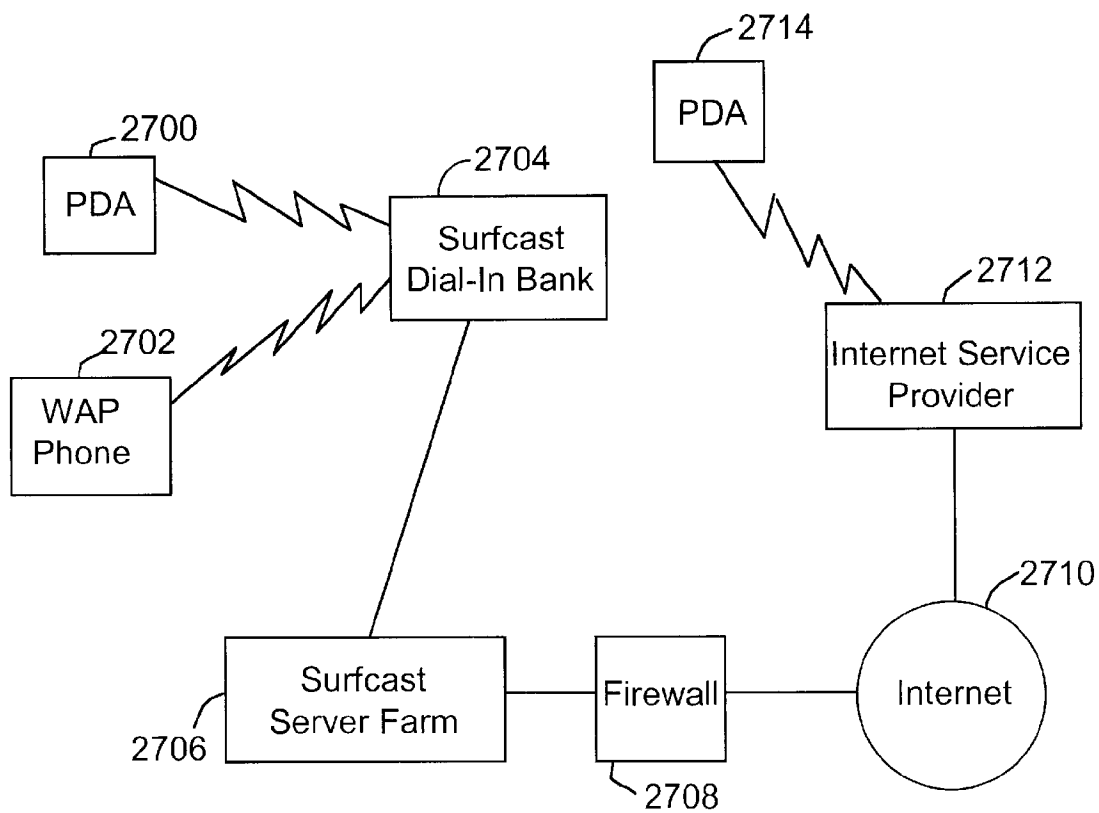The present invention relates to methods of presenting information from a variety of sources on a display device. Specifically the present invention describes a graphical user interface for organizing simultaneous display of information from a multitude of sources.

BACKGROUND OF THE INVENTION

The scope of the global communications capacity, comprising fixed link and wireless networks, continues to expand rapidly. The variety and complexity of communication devices proliferates and the number of users escalates. As a result, users are faced with increasingly complex systems and interfaces with which to manage multiple sources of information. At the same time, society has increased its demands on time and productivity so that users no longer have the luxury of focusing their attention on a single source of information or means of communication. Instead, the norm today is for people to carry out many tasks simultaneously.

As might be expected, these demands have exposed substantial problems in current communications technology. In particular, users are faced with insufficient resources to manage and access the volume and variety of information available to them in an efficient and productive manner. While a variety of tools designed to assist in accessing and managing these resources have been created, these tools remain unsatisfactory. Consequently, users are impeded by the myriad of information sources, each with its own method of use and often with its own login and password requirements, as well as by slow retrieval times to access the information. The result is an unacceptable delay for many operations.

Under the present art, for example, it is usually the case that a user lacks the bandwidth resources to receive multiple video signals simultaneously. If an individual were receiving one video signal, it is usually impractical to receive a second at the same time due to bandwidth constraints. Thus, the user could not, for example, monitor multiple video data streams of sporting or news events; instead, the user could monitor only one video data stream at a time.

To address such bandwidth resource limitations, the current art only accesses information when the user requests it. As a result, there is an inevitable delay between the user's request for information and the communications device's presentation of it. For example, if a user wants to monitor sources of news information on the Internet using current browser technology, the user must continuously and manually request the news data from its source to determine whether the data has been updated. Prior to requesting and subsequently receiving the data, the user has no way of knowing whether the data has been updated. In any case, the user is unlikely to want to refresh the status of each application by manual intervention himself at the frequency necessary to ensure that the information is up to date. Additionally, if a user wishes to view two or more webpages simultaneously, he must run two or more copies of the web-browser program. The act of manually refreshing the content of alternate programs in order to ascertain which have any new material to offer is fundamentally inefficient.

Similarly, the user's access to such data is not in real-time or even near real-time because each time the user wants to view the information, he must request it from its source and wait for the source to transmit it to him. Thereafter, he must wait until his communications device has received and processed the information before it is presented. For complex information such as a video signal, this can take longer than a minute to occur; and, even for simple information, this process can take many seconds. Thus, the user is denied real-time or near real-time access to the information.

Present technology that locally stores or "caches" previously accessed information to make it available to the user more rapidly does not solve this problem, because the cached information is necessarily old. The user's communications device must still verify the accuracy of the information with the source before the system displays the cached information. As a result, the user is denied real-time or near real-time access to updated information.

Similarly, if a user wishes to make two or more simultaneous downloads there is no control over the relative rates at which the respective downloads would occur. So-called "push technologies" attempt to address this problem by organizing information from a number of related sources and sending it periodically to a user. While this arrangement frees a user from actively participating in the download, the price is that the user has little control over the organization of the information and can only practically handle a small number of such transmissions at any one time. Each transmission is subject to the bandwidth available.

Of course, not all tasks require the same allocation of resources and, correspondingly, not all tasks have equal priorities for a given user. In particular, a user may wish to customize the information environment in such a way that many processes are occurring synchronously, yet each is communicating with the user at a rate that is acceptable. For example, a television viewer may wish to know what is being broadcast on several channels at the same time but only care to watch one of them closely. An Internet user may wish to be continually in touch with sources of data from audio, video, chat-room, video-conferencing and e-mail checker utilities, but not wish all of them to update at the same frequency; the user would be satisfied merely to see at a glance a recent status of each. Some of these processes, such as chat-room activities entail very little data transmission and can, indeed, be effectively updated on a continuous basis, whereas others require a great deal of bandwidth but could usefully be sampled at a lower rate. The current art lacks any technology for controlling the respective refresh rates of several simultaneous information sources.

At the same time that users are limited by system resources, they are also finding that they have no effective way of managing the multiplicity of available data types and information sources. It is difficult both to conduct two or more different types of computing activities at the same time or to monitor two or more different information sources simultaneously because the tools available are confusing, inflexible, and/or otherwise difficult to implement. Users require immediate access to a wide variety of up to date content presented in a flexible, easily customized interface.

In addition to restrictions in the capacity of today's networks, there is very little conformity amongst the information content. A typical communication device, such as a personal computer, television or mobile telephone, com-

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prises a display unit connected to a processing unit that can accept information from many different sources. As described above, the signals, data and/or datastreams that are available to such a device are diverse, including, for example, HTML content, e-mail, or streaming audio and video. Correspondingly, the software tools that interpret and process the different information sources present each in a different way to the user. From a user's perspective, distinctions between the different types of information could usefully be removed so that each is viewed in a similar way and such that the current presentation associated with any information source gives an immediate indication of its current content. The present reality is different, however. The user must contend with a wide range of icons and program windows that may occupy space on a user's display screen. Another lack of conformity is the different mode of behavior for programs that address different types of information. An effort to standardize the ways in which different types of information are presented to the user would be advantageous. Equally, unification of the way in which those types of information are managed would save time and increase user productivity, for productivity is reduced when users must cope with different attributes of different programs and learn distinct paradigms for different types of information.

The nature of the application program windows and their respective icons predominantly found on today's computer displays is restrictive. The application window typically displays the current content or output of only a single program and program icons convey nothing of the program's current state or content. Often, an icon is a static image which is merely characteristic of the program or data represented thereby rather than the program's current state or its information content. In the present art, there is no intermediate between a window or an icon.

Thus, while a window may be resized as appropriate, it will frequently occupy the full display area, effectively limiting the user to a view of a single program. It may have active areas around its borders such as menu bars, scroll bars, or tool bars designed to allow the user to control aspects of the window's appearance or to set parameters specific to the operation of the program controlling it. Icons, in contrast, offer ease of display when multiple programs are active, but they do not permit viewing or control of the underlying program or data represented thereby. Instead, icons require user intervention, typically in the form of a mouse-click on an icon of interest, to view or control the program or information. Consequently, the user's viewing options are limited to a choice between one presenting very limited information about a multitude of programs and information and one presenting full information, but of only a single program or data source.

The fact that the GUI's of the present art are largely restricted to icons and windows diminishes the capacity to organize, manage, and access available information. With the Internet representing an ever expanding view of currently accessible global information, the need for flexible information management tools has become crucial. Similarly, with the current expansion of television programming available, for example, through cable television and satellite broadcasting, the need to manage this audiovisual content becomes cute. The convergence of television programming and computers increases these management needs all the more.

Current computer operating system software utilizes bookmarking schemes for managing Internet locations and complex database technologies for managing specialist information. Neither provides visual immediacy or ease of

layout. Bookmark hierarchies are presented as cascading textual menus and database technologies arrange information into rigidly defined structures. The missing capability is a visual categorization in which an area of the display unit itself becomes the bookmark and the arrangement on the display becomes the categorization, independent of the type of content.

While the most common way of accessing information sources is via a personal computer, present day technology exists to communicate via a television, handheld computing device, or even mobile telephones, in which case Internet content and other data can be displayed as some portion of the screen. There is a growing convergence of technologies: televisions are beginning to find application as viewers of non-television data, (for example through use of "Vertical Blanking Interval" technology in which a signal is inserted into the main video signal or through set-top boxes providing limited computer and communications functionality); computers are already finding application for the display of movies, real-time data streams, and the playing of audio data; handheld computing devices and mobile telephones are also being enabled to access the Internet and other information sources.

To summarize the current state of the art, display technologies currently lack an interface which is capable of organizing any type of information, presenting such information to the user in a consistent manner and in such a way that all currently open channels are able to indicate their activity on a continual basis and which could run on any device.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides an easy to use graphical interface that facilitates the organization and management of multiple data sources corresponding to a user's needs and interests. The present invention comprises a grid of tiles that resides on the user's computer desktop. The grid of tiles provides a uniform, graphical environment in which a user can access, operate, and/or control multiple data sources on electronic devices. The graphical environment is uniform with respect to the source of accessed information and can manage multiple streams of content, entirely of the user's choice. For example, the invention presents video clips, e-mail messages, television shows, Internet sites, application programs, data files and folders, live video streams, music, radio shows, and any other form of analog signal, digital data or electronically stored information, to the user uniformly and simultaneously, regardless of whether the information is stored locally or available via modem, T1 line, infrared, or any other form of communication. The user's impression of the interface is also independent of the type of electronic device upon which it is implemented.

The present invention comprises a method executed by a computer under the control of a program stored in computer memory, said method comprising the steps of: partitioning a visual display of a computer into an array of tiles in a non-overlapping configuration; assigning a first refresh rate to a first tile of said array of tiles and a second refresh rate to a second tile of said array of tiles; updating information presented to said first tile in accordance with said first refresh rate; and updating information presented to said second tile in accordance with said second refresh rate.

The present invention additionally includes an electronic readable memory to direct an electronic device to function in a specified manner, comprising: a first set of instructions

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to control simultaneous communication with a plurality of datastreams: a second set of instructions to partition a display into an array of tiles; a third set of instructions to associate a first datastream of said plurality of datastreams to a first tile of said array of tiles and a second datastream of said plurality of datastreams to a second tile of said array of tiles; a fourth set of instructions to retrieve data from said first datastream in accordance with a first retrieval rate and retrieve data from said second datastream in accordance with a second retrieval rate; and a fifth set of instructions to present data to said first tile in accordance with said first retrieval rate and present data to said second tile in accordance with said second retrieval rate.

The application program of the present invention runs on many different devices, including, but not limited to set-top box, personal computer and hand-held device. The grid and tiles retain the same characteristics, regardless of operating device. For example, the tiles remain individually configurable and can offer near real-time views of their data content. The application therefore permits the user's interaction with a range of electronic devices to be unified.

BRIEF DESCRIPTION OF THE DRAWINGS

Additional objects and features of the invention will be more readily apparent from the following detailed description and appended claims when taken in conjunction with the drawings, in which:

FIG. 1 shows a representative embodiment of the user interface of the present invention comprising a grid of tiles as might be depicted on a display screen.

FIG. 2 depicts a system that, in accordance with the present invention, accepts data in at least one form through at least one port and which additionally displays data to a user.

FIG. 3 shows stylised examples of an icon and an application window as are commonly found in computer display systems of the background art.

FIG. 4 shows several tiles as might be found in a typical embodiment of the present invention.

FIG. 5 shows an exemplary data structure of the tile object within the graphical user interface of the current invention.

FIG. 6 shows one embodiment of a tile in markup language.

FIG. 7 shows the hierarchy of software objects underlying the current invention, comprising a grid object, tile objects and files or application software.

FIG. 8 shows an exemplary layout of the display produced by the current invention.

FIG. 9 shows an alternative exemplary layout of the display produced by the current invention.

FIG. 10 shows an exemplary layout of the display of the current invention wherein a tile contains another instantiation of a grid.

FIG. 11 shows an exemplary layout of the display of the current invention including specific examples of tile contents.

FIG. 12 shows the data structure of the grid object which forms part of the graphical user interface of the current invention.

FIG. 13 shows one embodiment of a grid in markup language.

FIG. 14 shows a sequence of windows that demonstrate how a grid might be set up for initial use by a "wizard" tool in one embodiment of the present invention.

FIG. 15 shows an example of the architecture of the computer program in a preferred embodiment of the present invention.

FIG. 16 shows the architecture of the application program and its components in a preferred embodiment of the present invention.

FIG. 17 shows the architecture of components of the computer program in a preferred embodiment of the present invention.

FIG. 18 shows an outline of the widget-set used in a preferred embodiment of the present invention.

FIG. 19 shows an outline of the metabase according to a preferred embodiment of the present invention.

FIG. 20 shows an outline of the XP Core and its interaction with the operating system library in a preferred embodiment of the present invention.

FIG. 21 shows an overview of the event system utilized in a preferred embodiment of the present invention.

FIG. 22 shows an overview of the connection layers that are responsible for controlling the download of multiple web-pages from the world wide web.

FIG. 23 shows a number of functions used by the bandwidth controller.

FIG. 24 is a schematic representation of the relationship between a server and a client device.

FIG. 25 shows a series of interactions between a client device and a server.

FIG. 26 shows how a user, a server and third party content providers communicate in accordance with an embodiment of the invention.

FIG. 27 shows an embodiment in which the application program communicates with one or more wireless devices.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows an illustrative configuration of the graphical user interface of the present invention. A grid 1 consisting of a 3 by 3 matrix of nine tiles demonstrates some of the different contents that tiles can display. Tile 10 points to a database of stock quotes. Tile 20 displays the active folders in an electronic mail utility. Tile 30 displays a portion of an alphabetical list of quoted companies. Tiles 40, 50, 60, 70 and 80 point to websites displaying, respectively, high technology news, electronic goods for sale, categories of business news, items available by auction and the Wall Street Journal. Tile 90 points to the file-viewer of a windows-based operating system and displays the currently accessible disc drives.

Within the scope of the present invention, an information source may comprise any analog signal, source of digital data or a datastream, including, but not limited to, video, audio, text and graphics. The information may be in any format, including but not limited to ASCII, bitmap, MP3, JPEG, GIF, TIFF, a mark-up language such as HTML, XML, VRML, HDML, formatted text such as rich text format, or binary.

FIG. 2 is a general representation of a data display system 100 within which the present invention may be implemented. System 100 comprises a central processing unit 104, an input device 106, data connection ports 108-1 through 108-N, a display 110 and a main memory 112, all connected via bus 116. Residing in the memory 112 is an operating system 120, a file system 122, a cache 124 for temporary storage of information, application programs

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128-1 through 128-N and a graphical user interface (GUI) program 126 that is responsible for presenting information on to display 110. Information may enter the system through any one of the ports 108-1 through 108-N which may themselves be connected to a tuner 114, or via a network interface 134 to a communications network. If a tuner 114 is employed, it may channel input from a wireless signal 130 or a cable network 132.

In one embodiment of the present invention, system 100 is a personal computer such as a desktop workstation or a portable notebook computer. In that case the input device 106 may be a keyboard, mouse, trackpad, trackball, or any combination thereof and the display 110 may be a conventional cathode ray tube (CRT) or active matrix flat-screen display. The network interface 134 may then be a connection to the internet or to a local area network via a cable and modem or a digital subscriber line.

In another embodiment of the present invention, system 100 is a mobile phone or personal digital assistant and the input device 106 may consist of several buttons on a keypad, a touch-sensitive screen with a touching device or a microphone and voice-recognition software. In this embodiment, the display 110 is preferably an LCD screen or an electroluminescent display and ports 108 receive data from radio signals or a portable modem.

In yet another embodiment of the present invention, system 100 comprises a set-top box wherein display 110 is a TV screen or monitor and tuner 114 accepts input in the form of a wireless signal 130 from broadcast transmissions or cable signals from the cable network 132. Input device 106 may be a hand-held remote control apparatus or buttons located on the set-top box or touch-sensitive areas of display 110.

As is known to those skilled in the art, a graphical user interface is a computer program that resides in memory 112 of some data processing system and that provides means for presenting information, input to and output from application programs 128 or content of datastreams from ports 108 on an associated display. In the background art each datastream is associated with a window. The graphical user interface allows a user to control the arrangement and display format of the data content in each window. Usually a graphical user interface permits a user to specify and alter operating parameters of application programs running on the system though, at any given time, a particular application program will take priority, meaning that a particular window will be displaying continually updating content. Typical operating parameters that may be changed depend upon the application program but include the number of buttons on a tool bar and number of visible toolbars, the size of the text displayed and the color of the background.

By contrast, the graphical user interface of the current invention not only permits a user to control the layout of the data content but to prioritize each application program running on the system and each datastream of interest. A novel feature of the present invention is that the data content of any number of the programs can vary in real time and the rate at which the display of each is updated can be controlled by the user.

Tile Objects

In the ensuing discussion, tile objects are introduced and described and contrasted with existing elements of graphical user interfaces. A tile presents content from any information source.

Conventional graphical user interfaces of the background art provide two distinct representations of programs, files

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and datastreams, as shown in FIG. 3. One representation is an icon 320, the other is a window 340. An icon typically occupies only a relatively small proportion of the available display area and is an easily recognizable depiction of the program or file, either through its logo 322 or some characteristic picture with the name 324 of the program visible. An icon can be selected by, for example, a touch screen pointer, a cursor controlled by a mouse with a button or by a keyboard stroke or any combination of the foregoing. In response to a further selection operation on an icon, for example a double-click of a mouse button, the graphical user interface will provide a window that can be used to communicate further information to the program or review the associated datastream.

The window may occupy a substantial percentage of available screen space, usually 90–100%. The window 340 usually comprises a title bar 348 and a display area 354. The window 340 can commonly be resized by the user for example by using buttons 352 or a draggable area 356 and has a format which contains many active areas around its borders. Examples of active areas include a menu bar 342, a vertical scroll bar 344, a horizontal scroll bar 350 and one or more tool bars 346. Each active area may be used to control aspects of the window's appearance or to set parameters specific to the operation of the program associated with it such as text formatting options in a word-processing package or redirection of a web-browser to its stored home location.

In the present invention, a third graphical representation of programs and files, herein called a tile, is introduced. Tiles permit "dynamic bookmarking" of information in that each tile is a viewer of a single information source—including streaming data sources—and can be customized with the user's choice of content.

A tile is different from an icon because it provides a real-time or near-real time view of the underlying information in that it contains continually refreshed content. A tile is different from a window because a tile will typically be smaller in size, allowing the user to view multiple tiles simultaneously if desired.

A tile provides an at-a-glance view of the current status of the program or file associated with it but does not necessarily have the large number of active areas associated with windows such as title bar, menu bar and scroll bars. Therefore tiles lead to a reduction in clutter on the display screen because many tiles may be displayed simultaneously without overlapping with one another in the way that windows must necessarily do. Tiles are superior to icons because they give an immediate indication of the current state of the file or program and have utility functions associated with them, as described below. Another advantage of using tiles is a uniformity of appearance between tiles which correspond to different programs and datastreams. The display content of a tile will differ from application to application though its size and format need not.

A tile is associated with a program, file or datastream, in the same way that an icon and a window are. A tile may present data in any of a number of ways. For example, in the preferred embodiment, the tiles may present a miniaturized, "thumbnail" view of the underlying information; a "porthole" view of a portion of the underlying information as viewed at full size; a symbol indicating whether the information has been updated since it was last viewed; or a custom interface designed to allow rapid access to the underlying information. The way in which a tile displays content may be independently configured for each tile.

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FIG. 4 illustrates representative tiles. Tile 402 displays a picture or graphic such as may be stored in a bit-map, JPEG, TIFF or GIF file, or on a world-wide web page. The content of tile 402 is typically a miniaturized representation of a graphic or still-frame from a datastream. Tile 404 displays a portion of a text document or text of a world-wide web page. In this sense the tile functions as a transparent panel placed on top of a document, thus permitting a portion of the document to be displayed. Tile 406 displays a further array of tiles that may be displayed in full by expanding tile 406 to occupy the full area of the display. Tile 408 has been configured to link to an electronic mail program. An alarm setting associated with tile 408 has been configured so that the tile displays an envelope and the message "New Mail!" when an unread message has been received by the mail program. Tile 410 displays a name, "FM 101", denoting the title of a broadcast signal, in this case audio, that is associated with the tile. Tile 412 displays a "thumbnail" of the document viewed in a window such as 340. A "thumbnail", as used herein, is a miniaturized representation of an image that retains sufficient characteristics to permit easy recognition of the image. For example, if the document displayed in a window were a multipage document, tile 412 may display a thumbnail of the first page of the document.

Tiles are selectable and live. When a tile is selected, whether by mouse click or otherwise, the tile instantly provides the user with access to the underlying information, whether that data be a hierarchical menuing system leading the user to a different level or tiles, a word processing file stored on a local area network, a spreadsheet stored locally on a user's computer, HTML file on the Internet, or a television signal. The tiles are live in that each contains real-time or near real-time information.

In a preferred embodiment a selection operation is associated with a tile. For example, clicking on a tile will cause it to immediately refresh its contents. Selecting tile 402 causes the most recent frame of the video stream to be displayed by the tile, or, if the picture were obtained from a static graphic file, causes the most recent version of the file to be displayed by the tile. Selecting tile 404 or tile 412 causes the most recent version of the document to be displayed.

In a preferred embodiment, double-clicking a tile causes that tile to occupy a substantial fraction of the whole display area. In this embodiment, double clicking tile 402 or 412 causes the image to be expanded to fit the whole display area. In an alternate embodiment, selecting a tile causes it to occupy an area in the middle of the display that is larger in area than a single tile but does not occupy the full display. If tile 404 were double-clicked, as much of the document as could be displayed in the enlarged tile in regular font size becomes visible. Double-clicking tile 408 causes the mailbox window of the e-mail utility to be sufficiently enlarged to allow new messages to be selected and read. Double-clicking tile 410 causes the audio stream to become audible over the appropriate channel of the system.

A representative tile data structure 500 is shown in FIG. 5. It is important to understand that the tile itself is an image that at any given instant is resident on the file system. This image is separate and distinct from the application program or file associated with the tile. The tile data structure 500 comprises two addresses: a tile address 502 that defines the location on the file system where the tile image is stored; and a target address 504 that is the location at which the file or application program associated with the tile can be found. Additionally, the tile data structure contains a name 506 that may be displayed on the tile in certain circumstances. Tiles

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of the present invention may be assigned at least seven functions, including but not limited to: an initialization function 508 that is responsible for establishing a connection with the target address 504; a refresh function 510 that handles updates to the tile image stored at the tile address 502; a screen-size function 512 that stores the dimensions of the display area filled by the tile upon receipt of a request; an alarm function 514 that permits the tile to display an alarm or warning when the application program associated with the tile encounters a designated event; an on mouseover function 518 and an on mouseout function 520 which control the behavior of the tile when a selection tool such as a mouse-controlled cursor is placed respectively on and off the tile; and a toolbar function 522 which may permit an array of special buttons to appear on or adjacent to the tile for the purposes of adjusting properties of the tile. In one embodiment, a tile is configured so that a right-click of a 2-or 3-button mouse while the cursor is over the tile would activate the tool-bar function. In a preferred embodiment, right-clicking on a tile can reveal a menu of options that enables the user to ascertain properties of the tile, such as the bandwidth it is consuming.

In one embodiment of the present invention, the tile is itself a document created in a markup language such as HTML or XML as shown in FIG. 6 and is suitable for display in a web-browser. In this embodiment, a tile occupies a position in a table defined with elements of mark-up language which will be familiar to one skilled in the art. Tile-specific attributes are introduced which control the way in which a web-browser displays the tile. In the example in FIG. 6, the tile has a clickable map, i.e., separate areas of the tile produce separate results when clicked. Also, this tile has a toolbar, which in one embodiment may appear if the mouse is right-clicked when the cursor is over the tile.

In another embodiment of the present invention, tiles communicate with one another and have conditional content. That is, the content of one tile depends upon the content of another.

Grid Object

The arrangement, layout and independent functioning of the tiles on the display and exemplary software for their control is now described with respect to FIGS. 7–13.

The overall hierarchy of a graphical user interface embodied by the present invention is summarized in FIG. 7. The Grid 700 is the top level functionality to which application programs are subordinate. The grid can replace the functionality of a user's computer desktop and offers similar and additional features. Grid 700 comprises a matrix of tiles of which tiles 702, 704, 706, 708 and 710 are representative. The user can control the grid in such a way that the tiles 702, 704, 706, 708, and 710 present simultaneous information content from a plurality of sources. The grid controls the layout and priorities of the tiles. Each tile is associated with a data stream or application program and allows a choice of displayed images. In particular, different tiles can be associated with different contents. For example, tile 702 is connected to a web-page viewer 712 such as a browser. Tile 704 is connected to a source of streaming video 714, such as Real Player. Tile 706 is connected to an audio player 716 such as a CD-player program or a source of streaming audio such as Real Audio. Tile 708 is connected to a file viewer 718 such as a text-editor or a word-processing package. Tile 710 is associated with another grid object 720, thereby permitting a "layering" of information hierarchies. In a preferred embodiment, a grid embodies a similar underlying data structure to a tile.

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Each tile is separately associated with a source of information, for example, an application program, datastream or file, any one of which may be another grid object. Such a hierarchical structure permits a user to organize programs and information through the graphical user interface. For example, separate categories of information can be displayed on separate grids allowing each grid to be associated with a theme.

By using the native attributes of a tile, a user may specify a presentation of the grid, consisting of its dimensions, (i.e., the number of tiles to display and their arrangement), and the programs or files to be associated with each tile. A single grid, composed of multiple tiles, may therefore present a number of information sources simultaneously.

Together, the grid and tiles comprise the application through which a user can view simultaneously information from a multitude of his available sources including multiple sites on the Internet, receive signals from multiple broadcast channels, and open and view multiple files. In its initial embodiment, the application may be run through conventional computer operating systems, whereupon it overlays the user's desktop and acts as if it were a "borderless browser". Therefore the application resides over existing applications without replacing any of them; rather it enables them to be called from the grid itself. The application, therefore, becomes a graphical file manager in which the content of continuously changing files, i.e., datastreams, is being displayed in real-time or near real-time, depending on the assigned priority. Effectively, the application replaces the user's desktop with a more visually intuitive dynamic menuing system.

In a preferred embodiment, a grid of tiles replaces the functionality of the computer "desktop" utilized by many modern computer operating systems. Whereas a desktop is typically populated by static icons and tool bars, a grid of tiles instead presents to the user an array of snapshots of current programs and files. The essence of the grid is that its content is dynamic and informative. As previously discussed, icons are inherently limited in the information that they can present and windows clutter the entire desktop. By contrast, each tile on the grid can show the current status of the data or datastream associated with it. The fact that a tile may refer to a separate grid permits nesting of grids and consequently a hierarchy of organized information sources.

The grid also understands the interests of the user and acts as a repository for passwords and identifiers to subscription services. In this way, it is not necessary for a user to remember and enter a user name and password to access data requiring such a log-in. In this same vein, Internet sites of interest can be "bookmarked" and stored by the grid, each such site possessing its own tile. The grid is also nestable in that a tile in one grid may point to a separate grid and tiles in the separate grid may point back to the first grid or to yet more grids. If desired, a user can impose a "theme" on a grid and thereby categorize, group, and/or otherwise manage his data sources. In this manner, the user can group tiles relating to particular subject matters, Internet sites, documents, or otherwise in a grid according to some speciality. A tile in such a grid could link to another grid to provide a connection between related categories. Equally, a tile on more than one grid can point to the same information source.

In a preferred embodiment, the grid permits a regular layout of tiles on the display screen such that the tiles are uniform in size and shape, as depicted in FIGS. 8–11. Each tile is indexed by its position on the grid. For example 802-2-1 is the first tile in the second row. Tiles in the first row of the grid are 802-1-1, 802-1-2, 802-1-3 and so on, to 802-1 Tiles on the second row are 802-2-1, 802-2-2, 802-2-3 and so on, to 802-2-N. And, tiles on the bottom row are 802-M-1, 802-M-2, 802-M-3 and so on to 802-M-N. There are no gaps between the tiles, the tiles are not permitted to overlap and the whole grid is covered by tiles. FIG. 8 shows one embodiment in which all tiles are the same size and are presented in an array comprising M rows and N columns. There is no particular requirement that the arrangement consists of more than one row and more than one column. On the display of a mobile telephone or smart phone, for example, a single row of tiles may be apposite.

FIG. 9 shows an arrangement in which there is a unit tile size, that of tile 802-1-1, but tile 802-1-2 and tile 802-N-1 have each been configured to occupy regions of the grid equal to exact multiples of the unit tile size. Such an arrangement may be useful and important if one or more datastreams is of particular interest but the others are also to be monitored at the same time.

FIG. 10 shows an arrangement of tiles in which Tile 802-M-1 is associated with a further grid 1000. The lower half of the figure shows an enlarged perspective of that tile showing a grid with Y columns and X rows.

FIG. 11 shows an arrangement of tiles in which are depicted different application programs associated with three of the tiles. Tile 802-2-2 links to a file viewer displaying a specific file; tile 802-N-1 presents streaming video; Tile 802-M-N depicts a page of information on the world wide web.

FIG. 12 shows a schematic data structure of the attributes of one embodiment of grid object 700. The architecture shown in FIG. 12 applies to any grid, including a top-level grid 700 shown in FIG. 7 as well as to a grid that is contained within a tile.

Significantly, the grid manages the flow of information to the tiles. For example, the grid can communicate with the display device in order to determine its current configuration and allocation of resources. In one embodiment the grid continually cycles around the currently displayed tiles, one by one, refreshing the content of a tile each time it is accessed. When a given tile is refreshed, the refresh operation is completed before refreshing the next tile in sequence. In this way, the cycling rate may be set so that the current content of all tiles are reasonably up to date. The cycling can be interrupted by a user selecting a given tile, so that that tile alone becomes continuously updated. In this way, the user does not need to worry about manually refreshing multiple tiles.

In a preferred embodiment, according to priorities that may be applied to individual tiles on a tile by tile basis if desired, the grid manages the refresh rate of each tile in the grid. For example, for locally stored word processing or spread sheet files, the user might configure the tiles to refresh only when the underlying data is written to the local hard drive. Similarly, a user might configure tiles containing infrequently updated HTML data from the Internet to refresh at a certain time each day. At the other extreme, a user might configure an active tile to display a television channel at a refresh rate of 29 frames per second, while at the same time configuring inactive tiles to display different channels at a refresh rate of once every five seconds. In this way, a user could monitor many channels until program content of interest appeared in one of the tiles without the burden of actively refreshing each tile.

The grid itself has an address 1204 that specifies its location within the file system of the device in which the

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application program program runs. The grid has associated with it several utility programs: a configuration wizard **1206** that may be called by the user when setting up a new grid; a tile creation function **1208** utilized by the configuration wizard when initializing new tiles; a tile annihilation function **1210** utilized in case of error or when resizing the grid.

The grid object stores the number of rows **1212** and the number of columns **1214** of tiles that are present. The grid also stores a tile list **1216** containing attributes of each respective tile. In particular, the address of each tile, its priority and its refresh rate are stored by the grid program. The grid also stores other attributes of tiles such as their respective positions on the grid as given by their column and row number. The priority of a tile may be used to determine its refresh rate in one embodiment of the present invention. A tile can have a password feature built into it if it is desired to restrict access to the tile's content. The grid itself can have a toolbar by which its attributes may be accessed and modified.

In a preferred embodiment, a grid is a special form of a tile. It is a tile that can create and manage an array of other tiles. Accordingly, its data structure also comprises those elements of a tile data structure shown in FIG. **5** in addition to those shown in FIG. **12**. If the grid has a parent grid, the address of the parent grid **1202** is stored. For example, grid **1000**, associated with tile **802-M-1** of FIG. **10**, has grid **700** as its parent.

The grid can be configured to contain any number of tiles from one to as many as can reasonably fit on the user's display.

In one embodiment of the present invention, the grid is a document created in a markup language such as HTML, SGML or XML, FIG. **13** and is therefore suitable for display via a web-browser. In this embodiment, the addresses of the parent grid, the grid itself and each of the tiles are expressed as a Universal Resource Locator (URL). The various functions controlled by the grid are accessible through function calls devised according to methods familiar to one skilled in the art. For example, "dynamic HTML", java applets or simple CGI-scripts could provide the technological basis for enabling various grid utilities.

The application may be downloaded from a predetermined web-site and operates in a client-server mode. Users may download preconfigured grids from the predetermined server. A grid configuration "wizard" program which guides a user through a step by step set up of a custom-grid may also be downloaded. Other web hosts are able to deliver content to end-users via the predetermined server. Some basic functions of the grid can be carried out on the predetermined server and provided to the user.

Grid Configuration Wizard

In one embodiment of the present invention, the set up of a particular grid is achieved through a grid configuration program ("wizard") that is downloaded to the display device from a remote site. The grid configuration program permits a user to define and install one or more grids on the client system. When a tile is partitioned into a further array of tiles, the grid configuration program can also be used. One embodiment of the user interface of the grid configuration wizard is shown in FIG. **14**.

A first screen displayed by the grid configuration wizard comprises an application program logo **1404**, button **1406** to guide the user to the next screen and a number of choices, such as **1408**. The user is offered the choice of preconfigured, or "standard" grid configurations, selected

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from a list. Examples of such grids include grids themed by content such as sport-related grids or by type of data such as grids whose content is video-based.

Additionally, the user is permitted to configure "customized" grids in which each tile can be taken from a list of predefined samples or can be initialized according to the user's wishes. In a second screen **1412** displayed by the grid configuration wizard, a tiled area **1416** represents the grid that the user is building. Sample tile categories **1418** such as "weather", "news", "stocks", or "sports" are listed. In an alternate embodiment, a grid can be filled by the "drag and drop" technique in which a selected document **1414** is moved on to the display area of the grid configuration program and automatically becomes a tile. A button **1410** offers the user the chance to go back one screen.

In a third screen **1420** displayed by the grid configuration wizard, the user can name the grid and, optionally, store it for future reference, for example in an archive of preferred grids. The user can elect to finish grid construction by clicking the "Finish" button **1412**, or launch the grid immediately by activating button **1422**. When launching the grid immediately, the grid is automatically constructed on the fly according to the content and tile types specified by the user during the set up procedure.

Architecture of Application Program Software

The hierarchy of the software in a preferred embodiment of the present invention is illustrated in FIG. **15**. The software comprises a number of modules. In FIG. **15**, an arrow connecting two modules means that one module uses an interface of the other. The arrow comes from the module invoking the interface towards the module whose interface is being invoked. An interface may simply be a function call between the two modules or, for example, a call to a dynamic linked library (DLL).

The Surfcast application program **1500** takes its underlying data from two sources, metabase **1506** and a system library **1514** that resides on the device on which the application program is running. For example, the application program **1500** may be required to call functions from the system library while it is running. Actual tiles that a user visualizes can be spawned from the metabase **1506**.

Data structures for user tiles **1502** are obtained from the XP core **1504** which itself also utilizes components from the system library **1514**. The XP core is an abstraction layer for the operating system environment. Tiles that utilize components such as buttons take these components from the widget set **1508**. A widget is a basic user interface element such as a button or a text input box. The metabase also uses an interface of the widget set **1508**, and can therefore use functions within the widget set. The widget set requests functions from the XP core.

Objects in the metabase **1506** that retrieve content from remote sources such as world wide web pages utilize a connection manager and bandwidth controller **1512**. A URL loader **1510** decides whether content should be obtained afresh by contacting the connection manager **1512**, or from content previously stored in cache. Effectively, the URL loader manages the connection manager, and calls functions within it.

Underlying all of the application program's operations are functions from the operating system library **1516** that is supplied with the device on which the application program is running.

Each of the objects shown in FIG. **15** is now described in further detail by reference to FIGS. **16–21**.

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The Surfcast application program **1500**, in FIG. **16**, comprises a launcher **1618** and a framework **1620**. The launcher opens the program from scratch whereas the framework is responsible for managing grids and tiles. The user interacts directly with the framework to set up a preferred arrangement of tiles on the display. In one embodiment, the framework initially contains a prescribed set of tiles. The framework controls communication between tiles, for example, in the case of conditional content.

Tiles **1502**, FIG. **16**, are the equivalent of an application in a conventional GUI system. They can be built in C++ using the Surfcast tile builder application program interface (API) using XP core classes, or via a utility such as a custom tile editor or via a script file. Some predefined tiles are included with the basic Surfcast system including a web browser tile called a surftile **1602**, tiles for contacts and communications such as a chat tile **1604** and an e-mail tile **1608**. Media-player tiles such as a video tile **1606** are also supplied, as are tiles that interface to commonly used desktop programs. A word tile **1610** interfaces to a word processor; excel tile **1612** interfaces to a spreadsheet program. A general content viewer that can compose pieces of content clipped from a variety of sources, layout tile **1616**, is also provided. Reg tile **1614** is a general purpose tile that permits a user to define his own tile type.

In a preferred embodiment, all tiles have a common base class, and each specialized type of tile has its own class that builds upon the base class. There are many ways in which specific tile classes can be derived from the commmon base class. Functions for specific tile classes are readily apparent to one of skill in the art. Tiles may additionally be represented by markup language files and viewed within a web-browser environment.

The data classes in XP core **1504**, FIG. **16**, comprise base classes and utility classes with which tiles and widgets are built. In general, classes within the XP core describe how tiles can communicate with one another and with the overall application program framework **1620**. In particular, XP core classes are generic and portable, thereby permitting cross-platform capability.

XP core classes include: tilebase **1622** for the generic class that underlies all tiles; tile base view **1624**; tile controller **1626**; canvas **1628**; and classes for event handling **1630**. A view is what a tile uses to draw itself. Tile base view is the base class for all views associated with a visual object. A controller processes events, for example mouse moves, clicks, keyboard events and external events. Tile controller is the base class for controllers associated with a tile. A canvas is an area of screen on which to render some image, for example a tile.

The metabase **1506**, FIG. **17**, is a local store for platform-specific implementations of the descriptions of tiles, grids and other objects. Tiles, grids and content are created, saved and restored via the metabase. The metabase contains tile type and content type registries such as tile registry **1732**, and a local database of grids and content such as content store **1734** and grid store **1736**. Unknown tile and content types can be obtained from remote servers. Tile types are abstracted so that if a grid contains a particular type of tile, for example an e-mail tile, the metabase provides whatever is appropriate for the device the application is running on. Items in the metabase are "persistent", that is they are not saved explicitly but are preserved from session to session.

The widget set **1508**, FIG. **17**, comprises a platform-specific set of visual components that tiles can use. Widget set contains the predefined widgets that are included with the

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system. It can be extended with new widgets. It includes such useful widgets as a button **1738**, a label **1740**, an edit widget **1742** that enables a user to enter text into an editable field and a list widget **1744** that enables a user to select from a set of options. Items within the widget set can be used with tile types such as text input tiles, web browser tiles, and a streaming video tile. The term widget can also include more complex objects such as a video player that can be inserted into a tile as easily as a button.

The URL loader **1510**, FIG. **17**, provides a mechanism for retrieving content. The URL loader **1510** interacts with connection manager **1512** for tiles which need to make a network connection. Tiles and the metabase ask for content for a given URL and the content manager will attempt to retrieve it. The metabase also contacts the connection manager through the URL loader to ascertain whether there is sufficient bandwidth for the transfer. In particular, the connection manager decides whether the URL loader should furnish tile content from the cache **1746**, as would be the case if the content has been recently displayed and stored locally. Alternatively, if the content is not cached, the URL loader supervises loading of content from the location specified by the URL.

The URL loader also comprises a file manager **1748** for organizing the cached content. The URL loader additionally comprises a DOM (data object model) renderer **1750** that administers the parsing of pages in markup languages such as XML and HTML. The URL loader may also comprise an implementation of an API for XML rendering such as SAX. In an alternate embodiment, such an API may reside in the XP core module.

The system library **1514** comprises commonly used utilities within the application program, including, but not limited to, code for string manipulations, file handling and server communication. The system library module comprises generic code and can be compiled for any operating system.

The operating system library **1516**, FIG. **17**, comprises utilities that differ in their implementation from system to system but are needed for operation of the application program. For example, utilities that may be found in system library **1516** are those that provide support for threads and synchronization **1752**, debugging tools **1754**, graphics libraries **1756**, further basic string manipulations **1760** and connections **1762**. Additionally, not shown in FIG. **17**, useful items in the operating system library include utilities that permit definitions of objects, sockets, input devices and hardware devices. Items in the operating system library are accessible through classes with documented public interfaces.

The operation of the widget set **1508** is further described with respect to FIG. **18**. As previously mentioned, the widget set contains widgets for various functions such as buttons, text labels, etc. Illustrated in FIG. **18** is a set of widgets for buttons.

FIG. **18** shows the class hierarchy for the button widget. Base classes for widgets are grouped together in box **1809**. Widget class **1810** is a container for other classes. All widgets use the base class widget **1810** stored in the XP core module and further described later. Accordingly, button **1800** is a specific class inherited from widget **1810**.

Widget view **1812** is a class, also stored in XP core, that defines the look and feel of the widget. Button view **1802** inherits from widget view and controls how a button draws itself.

In the scheme of FIG. **18**, user tile **1816** comprises three objects, tile controller **1626**, the base class tile **1622** and tile

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base view **1624**, each of which is found in XP core and is further described later. Tile base view is responsible for drawing the tile and can employ one or more widgets.

A button is something that a user can click on. A button provides button events to a button event consumer. A button event consumer is also known as a client, i.e., clients that use buttons implement button event consumer **1808** to be notified of button events. For example, a button event consumer may be a "play" function in a video tile. The button event consumer interacts with a control structure tile controller **1626** associated with a user tile **1816** by telling the tile that the button has been activated. Button event consumer **1808** is itself a class that inherits from an event consumer class, described later.

Button controller **1804** controls how button events **1806** are processed, for example mouse and keyboard events. It inherits class structure from widget controller **1814** stored in XP core. Not all button events are recognized by the button controller: for example, a particular key-stroke may have no effect on the state of the button.

Other widgets follow a similar pattern. They include: textedit, for inputting text; textlabel, for displaying text; textspinner, for selecting from a choice of options; datewidget, for entering a date; list, for selecting from a choice of options; titlebar; and a toolbar.

Metabase **1506** is further described with respect to FIG. **19**. Arrows between the components in FIG. **19** denote interfaces. The metabase comprises a registry **1900** and store **1902** of tile and grid types, a content store **1918** and a content and tile link database **1920**.

Content store **1918** is a cache that contains content of tiles for the previous session. Content tile link database **1920** copes with descriptions of relationships between tiles and also themes of content for related tiles. This database can also be used in the context of "knowledge management", i.e., those operations that monitor a user's activities and attempt to suggest further sources of content based on it. Both content store **1918** and the database **1920** interface with tile type registry **1900**.

The tile type registry **1900** contains a list of tile and widget types along with information about how to create them and what they are called, along with other information such as pointers to objects from which tiles are created. The tile and grid store **1902** contains a library of stored grids and tiles. Tiles can save themselves or be restored. In a preferred embodiment, grids are just special cases of tiles. Tiles from the tile library can be called and displayed on the screen by asking the registry to load tiles. The tile and grid store interfaces to an XML library **1906**.

Tiles from the tile and grid store can also be saved outside the metabase in a library of markup language files, e.g., an XML library **1906**.

Also in the metabase is metabase tile **1904** which utilizes tile base **1622** from the XP core module. All tiles inherit from this class.

DLLs can contain additional tiles and widgets that can be created by independent third parties. These can be implemented within the metabase through the tile factory **1916** and tile creator **1914**, both of which interface to the tile type registry **1900**. The tile factory **1916** contains the description and classes necessary for someone to register a new tile type. Tile creator **1914** is the code that does the tile creation at runtime. In general, independent creation of tiles is facilitated by supplying a tile toolkit to third parties.

Inquiry utility **1912** is an optional means for an outside user to interface to the metabase, for example to ascertain the class structures of stored tile classes.

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The content store **1918** follows a similar pattern to the tile type registry and the tile store. The content and tile link database **1920** is a database of information about how tiles and grids are related, and how content is related between them.

FIG. **20** shows a further description of classes found in the XP core and their interaction with the operating system library **1516**. As discussed below, some arrows between objects within XP core denote inheritance of classes. Canvas **1628** describes an area of screen that can be drawn to.

GfxContext **2002** is a set of graphics primitives, for example for line-drawing, colors and space filling. It is a generic version that encapsulates and abstracts operating system-specific features inherited from GfxContextFactory **2032** in the operating system library **1516**. Win32 GfxContext **2034** is an example of a graphics context used with the Windows operating system. Other GfxContent **2036** includes alternative platform dependent graphics contexts.

The foundation classes are tile base **1622**, tile base view **1624** and tile base controller **2008**. Tilebase **1622** is the base class for all visual objects such as tiles, widgets and grids. The tile class **2010**, and widget base class **2016**, inherit from tile base. A widget effectively functions as a special kind of tile that can be placed inside a tile. Widget base **2016** is not meant to be instantiated on its own but is a foundation for the widget class **1810**, FIG. **18**, used by a generic widget.

Tile base view **1624** is the base class for all views associated with a visual object. A view is what a tile uses to draw itself. Also inheriting from tile base view is tile view **2012**, the base class for all views associated with tiles and widgetview **1812**, the base class for all views associated with widgets. Tile base view and tile base interface with canvas **1628**.

Tile base controller **2008** is the base class for all controllers associated with a visual object. Inheriting from tile base controller are tile controller **1626**, the base class for controllers associated with a tile and widget controller **2020**, the base class for all controllers associated with widgets. A controller processes all events. Tile base interfaces with both tile base view **1624** and tile base controller **2008**. Tile base controller interfaces to event system **2022**. Finally, event system **2022** communicates between the operating system library **1516** and the tile box controller **2008**.

Event system **2022** is further described with respect to FIG. **21**. An event can be any one of a mouse movement event, another mouse event such as a mouse-click, or a keyboard event such as a keystroke. In FIG. **21**, event **2112** is the base class. Other classes such as mouse movement event **2106**, mouse event **2108** and keyboard event **2110** derive from the base class by inheritance. The event consumer **2104** is a class responsible for directing events to the controller. The event producer **2102** is interpreting system events into Surfcast events for an event consumer. The boxes **2122**, **2124**, **2126**, **2128**, **2130** and **2132** are multiplexes handling the case where multiple clients are affected by multiple types of events. An event is communicated to tile base controller **2008**.

Managing Connections to More than One Datastream

When two or more tiles connect to sources of data available over a network, communication must be established in such a way that the rate at which updated data is transmitted to the grid can be controlled. In practice, for an embodiment of the application which resides on a user's computer, a flow control protocol such as TCP is required.

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In this way, each tile can communicate with the remote datastream to which it is linked and a determination can be made of available bandwidth at the time of data transfer. Alternatively, in a client-server mode, flow control is not necessary because communication with the server suffices, as is described below.

It is not practical to fire up a separate browser program from each tile that wishes to download data from a site on the world wide web. A web-browser is very greedy on memory and resources and the user would have little or no control over the respective rates at which data was downloaded from different sites.

Instead, in a preferred embodiment of the present invention, a hierarchy of layers manages the simultaneous connection and allocation of resources to different world wide web sites, as shown in FIG. 22. The layer structure applies to the way in which any given tile downloads content.

At the highest level there exists a widget, referred to as "Surf widget" 2200, which is the basic browser control within the application program of the present invention. Ideally, this widget will operate in conjunction with any commonly used world wide web browser. It will typically be associated with a tile type such as surftile 1602.

The surf widget communicates with a surf widget controller 2202 in a control layer 2201. Also in the control layer is a web browser application program 2204. Examples of such a program include Microsoft's Internet Explorer and Netscape's Navigator software. The surf widget controller 2202 handles the interaction between the surf widget 2200 and the web-browser 2204. The surf widget controller also passes on requests from the browser to the URL Manager 2206 in the next layer, the URL layer 2205. The surf widget controller then pipes back the results to be rendered to surf widget. A typical example of this process in operation would be: a user clicks on a hyper-link in a web-page; the web-browser makes a request for that page to surf widget controller 2202; the request gets handed to the URL manager 2206; once the page is loaded, the URL manager 2206 notifies the surf widget controller, which in turn sends the information to the web-browser for rendering.

The responsibility for obtaining pages of content is that of the URL layer 2205. When a URL is requested, the URL manager 2206 issues a request for the page and any subsequent media to the connection manager 2210. The URL manager keeps track of the requested URL for future use, if it is requested again. The URL manager also queues up URL's that have been requested according to their focus, i.e., the tile that a user has currently selected and according to the respective priorities of the active tiles.

In a preferred embodiment, a pre-fetch utility such as URL pre-fetch manager 2208 can be implemented. It saves the user time if items can be pre-fetched instead of waiting for their download. Several strategies can be used to obtain pre-fetch items for the user. Using a history of a user's previous browsing habits, it is possible to predict what the user will probably want next. Another function of a pre-fetch utility is to periodically check the validity of items in the cache and to make sure they are up to date. As would be familiar to one skilled in the art, some of the new HTTP1.1 methods would prove very useful for this; namely the conditional gets. Another strategy is to start loading links from the page that a user is browsing, regardless of whether the user has selected the links. Although such an approach could be very wasteful of resources if there are a lot of links and very few are ultimately accessed and also because a lot

of links tend to be advertisers, in situations where very high capacity bandwidth exists, this approach could be effective.

The connection layer 2209 handles each individual request for download passed to it through the URL manager, regardless of whether it is an HTML page, a graphic or sound file. The connection manager 2210 understands the total bandwidth available for allocation, for example, whether the device is connected to a modem or a T-1 line. It will also manage the connection to the requested site and maintain its own cache. Before making a network request for an item, connection manager 2210 first checks its cache, the connection manager cache 2212. If the item is not in the cache, the connection manager then passes the request off to the HTTP protocol socket 2214 in the protocol layer 2215. The way in which HTTP protocols and caches work is familiar to one skilled in the art.

The protocol layer 2215 consists of a suite of different socket types, 2214, 2216 and 2218, intended to support different communication protocols, such as HTTP, FTP and also a client server protocol specific to the application program via the surfcast protocol socket 2218.

The socket layer 2219 comprises at least one socket 2220. The socket layer wraps up all the system implementation specifics for a given platform and allows generic socket types us to be built on top. The socket keeps track of its bandwidth usage, which can then be queried at the connection layer. The socket layer then facilitates bandwidth management.

With all communications going through the same socket layer it is possible to easily collect data about a socket's bandwidth usage. If, at the connection layer, it is noticed that the total bandwidth allocation has been exceeded, it is a simple case of blocking further data transfer until such time as total bandwidth usage falls back under what has been allocated.

As a user switches focus from one tile to another priorities can be dynamically re-allocated to ensure the fastest possible loading of the selected page. All other communications can then abide by the same rules, allowing for complete control.

The sequence of events and functions in a "dynamic bandwidth allocation" feature of the present invention are described as follows. The dynamic bandwidth allocation feature involves the URL loader, the connection manager and the bandwidth controller.

The tiles that need access to the network resource for downloading content from a URL, pass certain parameters to the URL loader which manages all such requests from the tiles. These parameters include the URL itself, the priority of the tile, the minimum bandwidth requirement if any, and the maximum bandwidth requirement, if any.

The URL loader detects the need for a connection to a network resource, as would be notified to it by the connection manager. In the case of dial-up connections, the connection manager is responsible for allocating the modem resource and making the dial-up. Once a connection is made and the network resource is available, the URL loader requests the bandwidth controller to start delivering the required content, taking into account the additional parameters for each request.

The bandwidth controller 2300 is an object that comprises a number of functions, as shown in FIG. 23. AddURL 2302 is a function used by the URL loader to add an additional connection request to those already considered. RemoveURL 2304 is used by URL loader when cancelling or aborting a request. GetURLStatus 2306 is used by URL

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loader to obtain a status report for a given request. GetStatus **2308** is used to obtain a general status report for the overall bandwidth. The bandwidth controller **2300** is additionally able to execute a main cycle loop over the outstanding URL requests for the purposes of managing the bandwidth among them. The following pseudocode describes steps within the main cycle loop, according to one embodiment of the present invention.

```
while (uncompleted requests outstanding)
{
    calculate bandwidth obtained per request;
    check for need to postpone, stall or cancel lower priority requests;
    check for need to increase higher priority requests;
    detect completed requests and notify requestor;
    detect undeliverable requests and reissue or cancel if necessary;
    carry out other service and statistics functions, as required;
}
```

Each of these steps is explained, as follows. One or more of the steps may be performed in a different order from that presented above without departing from the scope of the present invention.

The step of calculating the bandwidth obtained per request utilizes a function that calculates obtained bandwidth for each of the managed requests, including requests that are stalled (or postponed) due to priority issues. This calculation takes place frequently because of the nature of the network. The bandwidth obtained can vary drastically even during the course of the individual network transaction, and therefore a priority based dynamic system must continuously accommodate such fluctuations. The result of calculating the bandwidth obtained is used both for feedback to users and for making decisions in the subsequent steps within the main cycle loop.

The step of checking for the need to postpone, stall or cancel lower priority requests is another precautionary mechanism to use for the purposes of adjusting the currently active connections. If outstanding requests are not achieving the desired minimum bandwidth, or an actual bandwidth in line with the priority of a given request is not achieved, bandwidth must be made available to the higher priority requests, by stalling, cancelling or postponing lower priority requests. A throttle feature implemented consistent with the layer nature of the stack can be applied wherein the frequency of issuing requests can be decreased. A complete cancellation of a request followed by reload from cache is usually the last resort.

The step of checking for the need to increase higher priority requests has the opposite effect. If applied, higher priority requests are increased by means of spawning additional simultaneous requests, or by increasing the throttle mentioned above.

Both the steps of checking the need to postpone and checking the need to increase a priority can provide feedback to the user in terms of their success or failure. Status parameters can additionally be collected and calculated.

The step of detecting completed requests and notifying the requestor utilizes a function for handling successful completed requests. Conversely, the step of detecting undeliverable requests followed by reissuing or, canceling the request if necessary is the mechanism for avoiding undeliverable requests, or retrying temporarily unavailable requests.

Other service and statistics functions may also be called, as may be necessary for supplying information to the layers above the connection layer.

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Client-Server Interaction

In one embodiment of the present invention, FIG. **24**, the user at client device **2400** interacts with server software on a server **2402**. The server stores locally a profile comprising user-specific content **2406** that can feed customized data to the user. For example, the user may store pre-defined grid configurations on the server. Additionally, passwords for specific web-sites can be stored along with the user's profile. A grid generator **2404** on the server creates a grid of tiles according to user-specified content. Each tile has been created on the server by producing an image from the location specified. For example, tile creator **2408-1** produces a tile from content **2410-1**. Thus, when a user logs on to the server, for example through a conventional web-browser, a grid of tiles is downloaded to the user's system.

The client-server embodiment provides a number of advantages. For example, individual users and the devices they use may be differentiated. Therefore, the tile-content that the server delivers can be customized according to the rendering device.

Turning next to FIG. **25**, each time a user logs on to the server **2402**, a "session" is initiated, step **2500**. The server verifies the user's identity, step **2502** and acknowledges the log-in, step **2506**. The client registers one or more resources, such as connection bandwidth, cost per transmission unit and properties of local playback device, step **2504**. From this information, the server identifies the client device type, for example, set-top box or personal computer, step **2508**. At step **2510**, the server retrieves grid settings specific to the user, if appropriate. Details of a session, as defined by tile content and priorities can be held over from one session to another, both for the purposes of permitting a user to continue with ongoing work and in order to protect against the adverse consequences of abnormal disconnections. Additionally, targeted advertising and messaging can be delivered to subsets of users via the predetermined server.

Having rendered a grid, step **2512**, and delivered it to the client device, the user can request datastreams, step **2518**. Any number of datastreams can be requested at once, the corresponding stream request information which defines parameters for each stream is communicated to the server.

Upon completion of these steps, the server knows the client characteristics and is able to distribute bandwidth available to the client among multiple content servers. In this example, if the client has an incoming bandwidth of say 56 Kbits/second, and is requesting datastreams from three sources with equal priority, then the server will respond for each request that a bandwidth of 56/3=18.7 Kbits/sec is available for each datastream.

The requested datastreams are displayed on the client device, step **2520** and, if the user changes the content of a tile or explicitly requests an update or refresh operation on the tile, step **2522**, an update request is sent to the server, step **2524**. Once the new content has been received, the grid is rendered anew, step **2526**.

Intensive operations on each displayed tile are also channeled through the predetermined server. For example, refresh operations on a tile generate a refresh request that is sent to the predetermined server. Similarly, requests to thumbnail a given image can be carried out, by request, on the predetermined server and the resulting compressed image transmitted to the user.

In the foregoing embodiment, the server component may reside locally on the client machine, in which case the server is known as the "Resource Manager", or it may be a remote server.

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In a preferred embodiment of client server operation, shown in FIG. 26, aspects of a user's grid profile are transmitted to third parties so that the third parties may then communicate tile based content directly to the user. For example, a user's custom grid may contain a tile that points to a third party web-site 2604. Content 2606 from the 3rd party web-site is typically transferred to the server for dissemination to the user. The server 2602 notifies the 3rd party web-site that the user requires tiled data by, for example, transmitting user information 2608. The third party then permits the tile based content of its web-site to be transmitted directly to the user.

The use of servers also allows for the latest versions of tiles to be downloaded and installed across all devices. Users are then able to share grids and tiles with other users. The server side technology utilized permits users of all client devices, from desktop PC's to mobile telephones with a consistent experience.

The majority of the server side code is written in Java, with C++ being used where necessary. Inter-server communication also utilizes XML to provide consistency with other aspects of the invention.

In a preferred embodiment, either Oracle 8i or SQL Server 2000 are used to provide a relational database (RDB) functionality of the server. Both of these RDB's now provide direct SQL to XML transformations. Databases are developed using the ANSI 92 SQL standard, which is usable by either of the RDB's.

Thin Client Technology

An object of the application program of the present invention is that it should operate on a variety of devices, including mobile telecommunications devices such as cellular phones, handheld web-browsers, palm pilots, personal digital assistants and other devices that can communicate by wireless application protocol (WAP).

Accordingly, because most handheld or mobile devices do not have the same amount of local storage and processing power as desktop computers and set-top boxes, a special version of the application program of the present invention is envisaged for mobile devices. The special version embodies so-called 'thin client' technology in which a lot of the operations are performed by a server instead of the device itself.

An "n-tier" architecture is one that is designed generically for a multitude of platforms, for example PC's, PDA's WAP phones and UNIX systems. Accordingly, in order to maximize the use of mobile devices, the application program of the present invention employs an n-tier architecture allowing the majority of the processing to be carried out on the server with the results being sent to the device for rendering. This model allows for a reduced size system to be stored on mobile devices, with the system logic residing on remote servers.

The features that are moved from client to server will be dependent upon the device in question. For example it is possible to provide the client with more features on a personal digital assistant such as a Palm pilot than on a WAP Phone.

In order to provide a level of consistency between the devices and the servers, the markup language XML is used to wrap the data that is being transmitted. As previously described, the system of the present invention uses a metabase to store information about the user's current grid and tile configurations. A synchronization procedure allows the metabase to be stored on a server and queried by any device.

In this way it is possible to provide consistent grid and tile implementations independent of the device and its location.

FIG. 27 provides an example of the way in which wireless devices can interact with a server. A personal digital assistant (PDA) 2700 or a WAP phone 2702 communicates in a wireless manner with a dial-in bank 2704. The dial-in bank communicates data to a server farm 2706 which is connected to the internet 2710, optionally through a firewall 2708. Alternatively, another personal digital assistant such as 2714 can communicate with an internet service provider such as 2712, also connected to the internet 2710. The server farm 2706 is able to provide content directly to a PDA such as 2700 or indirectly, over the internet, to a PDA such as 2714.

What is claimed is:

1. A method executed by a device under the control of a program, said device including a memory for storing said program, said method comprising:

selecting a plurality of information sources;

partitioning a visual display of the device into an array of tiles, wherein each tile in said array of tiles is associated with an information source in said plurality of information sources;

assigning a first refresh rate to a first tile of said array of tiles and a second refresh rate to a second tile of said array of tiles;

updating information from a first information source in said plurality of information sources presented to said first tile in accordance with said first refresh rate; and simultaneously

updating information from a second information source in said plurality of information sources presented to said second tile in accordance with said second refresh rate.

2. The method of claim 1 wherein said partitioning includes partitioning said array of tiles in accordance with a user-defined array size.

3. The method of claim 1 wherein said partitioning includes partitioning said array of tiles in a non-overlapping configuration wherein each tile of said array of tiles is a uniform size and shape.

4. The method of claim 1 wherein said assigning includes assigning said first refresh rate and said second refresh rate in accordance with a first priority value of a first information source associated with said first tile and a second priority value of a second information source associated with said second tile.

5. The method of claim 1 wherein said assigning includes attributing a selected state or an unselected state to said first tile and said second tile.

6. The method of claim 1 wherein said first refresh rate is different from said second refresh rate.

7. The method of claim 1 wherein at least one of said first refresh rate and said second refresh rate is specified by a user.

8. The method of claim 1 wherein said array comprises more than one row and more than one column.

9. The method of claim 1 wherein at least one attribute of each tile in said array of tiles is assigned uniformly.

10. The method of claim 9 wherein said attribute is a refresh rate.

11. The method of claim 1 wherein said first refresh rate is assigned automatically.

12. The method of claim 1 wherein said array comprises a grid wherein each of said tiles occupies a fixed position on said grid.

13. The method of claim 1 wherein a unit tile size is associated with said array of tiles, dependent upon a maxi-

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mum number of tiles displayed vertically and a maximum number of tiles displayed horizontally, and wherein each tile in said array of tiles has a fixed size that is equal to said unit tile size, or a multiple thereof.

14. The method of claim 1 wherein said array is displayed in a web-browser.

15. The method of claim 1 additionally comprising storing said array of tiles on a second device.

16. The method of claim 1 wherein said array of tiles is retrieved from a second device.

17. The method of claim 1 wherein said device is a mobile telephone.

18. The method of claim 1 wherein said device is a television.

19. The method of claim 1 wherein said device is a computer.

20. The method of claim 1 wherein said device is a personal digital assistant.

21. The method of claim 1 wherein said plurality of information sources comprises at least two information sources selected from the group consisting of: analog signal; video signal; audio signal; text; an e-mail program; a world-wide-web page; streaming video; streaming audio; and graphics.

22. An electronic readable memory to direct an electronic device to function in a specified manner, comprising:
    a first set of instructions to control simultaneous communication with a plurality of information sources;
    a second set of instructions to arrange a display into an array of tiles;
    a third set of instructions to associate a first information source of said plurality of information sources to a first tile of said array of tiles and a second information source of said plurality of information sources to a second tile of said array of tiles;
    a fourth set of instructions to retrieve information from said first information source in accordance with a first retrieval rate and retrieve information from said second information source in accordance with a second retrieval rate; and
    a fifth set of instructions to present information to said first tile in accordance with said first retrieval rate and present information to said second tile in accordance with said second retrieval rate.

23. The electronic readable memory of claim 22 further comprising a set of instructions to process a network datastream from a network data source.

24. The electronic readable memory of claim 22 further comprising a set of instructions to process a tuner signal from a tuner device.

25. The electronic readable memory of claim 22 wherein said second set of instructions arrange said array of tiles on a display of a mobile telephone.

26. The electronic readable memory of claim 22 wherein said second set of instructions arrange said array of tiles on a display of a television.

27. The electronic readable memory of claim 22 wherein said second set of instructions arrange said array of tiles on a display of a computer.

28. The electronic readable memory of claim 22 wherein said second set of instructions arrange said array of tiles on a personal digital assistant.

29. The electronic readable memory of claim 22 further comprising a set of instructions to assign a password to a selected tile of said array of tiles.

30. The electronic readable memory of claim 22 wherein said second set of instructions produce an array of non-overlapping tiles wherein each tile has a uniform size and shape.

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31. The electronic readable memory of claim 22 wherein said fourth set of instructions assign said first retrieval rate and said second retrieval rate in accordance with a predetermined priority scheme.

32. The electronic readable memory of claim 22 further comprising a set of instructions to selectively assign a selected or unselected state to specified tiles of said array of tiles.

33. The electronic readable memory of claim 22 further comprising a set of instructions to interrupt said first retrieval rate and present said first tile with static information from said first information source.

34. The electronic readable memory of claim 22 further comprising a set of instructions to deliver selected textual content from said first information source to said first tile.

35. The electronic readable memory of claim 22 further comprising a set of instructions to deliver a video signal to a selected tile of said array of tiles.

36. The electronic readable memory of claim 22 further comprising a set of instructions to deliver a frame of a broadcast TV signal to a selected tile of said array of tiles.

37. The electronic readable memory of claim 22 further comprising a set of instructions to deliver information from a network document to a selected tile of said array of tiles.

38. The electronic readable memory of claim 22 further comprising a set of instructions to deliver a web page to a selected tile of said array of tiles.

39. The electronic readable memory of claim 22 wherein said first retrieval rate is different from said second retrieval rate.

40. The electronic readable memory of claim 22 wherein said array comprises more than one row and more than one column.

41. The electronic readable memory of claim 22 further comprising a set of instructions for uniformly assigning at least one attribute of each tile in said array of tiles.

42. The electronic readable memory of claim 41 wherein said attribute is a retrieval rate.

43. The electronic readable memory of claim 22 wherein said first retrieval rate is assigned automatically.

44. The electronic readable memory of claim 22 additionally comprising instructions for storing said array of tiles on a second electronic device.

45. The electronic readable memory of claim 22 additionally comprising instructions for retrieving said array of tiles from a second electronic device.

46. A system for facilitating the organization and management of multiple data sources, comprising:
    a device that includes a processor configured to execute instructions, a memory connected to said processor to store at least one program that includes a graphical user interface, and an input device, wherein said processor executes instructions to:
    control simultaneous communication with a plurality of information sources;
    arrange a display into an array of tiles;
    associate a first information source of said plurality of information sources to a first tile of said array of tiles and a second information source of said plurality of information sources to a second tile of said array of tiles;
    retrieve information from said first information source in accordance with a first retrieval rate and retrieve information from said second information source in accordance with a second retrieval rate; and

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present information to said first tile in accordance with said first retrieval rate and present information to said second tile in accordance with said second retrieval rate.

47. The system of claim **46** wherein said array comprises 5 more than one row and more than one column.

48. The system of claim **46** wherein said processor additionally executes instructions for uniformly assigning at least one attribute of each tile in said array of tiles.

49. The system of claim **48** wherein said attribute is a 10 retrieval rate.

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50. The system of claim **46** wherein said first retrieval rate is assigned automatically.

51. The system of claim **46** wherein said processor additionally executes instructions for storing said array of tiles on a second device.

52. The system of claim **46** wherein said processor additionally executes instructions for retrieving said array of tiles from a second device.

*   *   *   *   *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.   : 6,724,403 B1   Page 1 of 1
DATED   : April 20, 2004
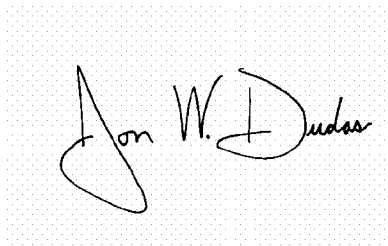INVENTOR(S)   : Ovid Santoro et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

<u>Title page,</u>
Item [*] Notice, "Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 471 days" should read -- Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 379 days. --.

Signed and Sealed this

Twenty-ninth Day of November, 2005

JON W. DUDAS
Director of the United States Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.   : 6,724,403 B1   Page 1 of 1
DATED   : April 20, 2004
INVENTOR(S) : Ovid Santoro et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is
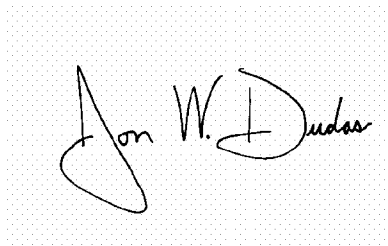hereby corrected as shown below:

Title page,
Item [*] Notice, "Subject to any disclaimer, the term of this patent is extended or
adjusted under 35 U.S.C. 154(b) by 259 days" should read -- Subject to any disclaimer,
the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 379 days. --.

This certificate supersedes Certificate of Correction issued November 29, 2005.

Signed and Sealed this

Ninth Day of May, 2006

JON W. DUDAS
Director of the United States Patent and Trademark Office

<u>CERTIFICATE OF SERVICE</u>

I hereby certify that on August 18, 2015, I electronically filed the foregoing

Appellant's Opening Brief with the Court's CM/ECF filing system, which

constitutes service, pursuant to Fed. R. App. P. 25(c), Fed. Cir. R. 25(a), and the

Court's Administrative Order Regarding Electronic Case Filing 6(A) (May 17,

2012).

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<u>CERTIFICATE OF COMPLIANCE</u>

This brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B). The brief contains 11,862 words, as calculated by the word count of the word processing system used in preparing it, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii) and Fed Cir. R. 32(b).

This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6). The brief has been prepared in Microsoft Word 2010 in Times New Roman 14 point font.

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